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The OIL and GAS JOURNAL

PRODUCING REFINING MARKETING

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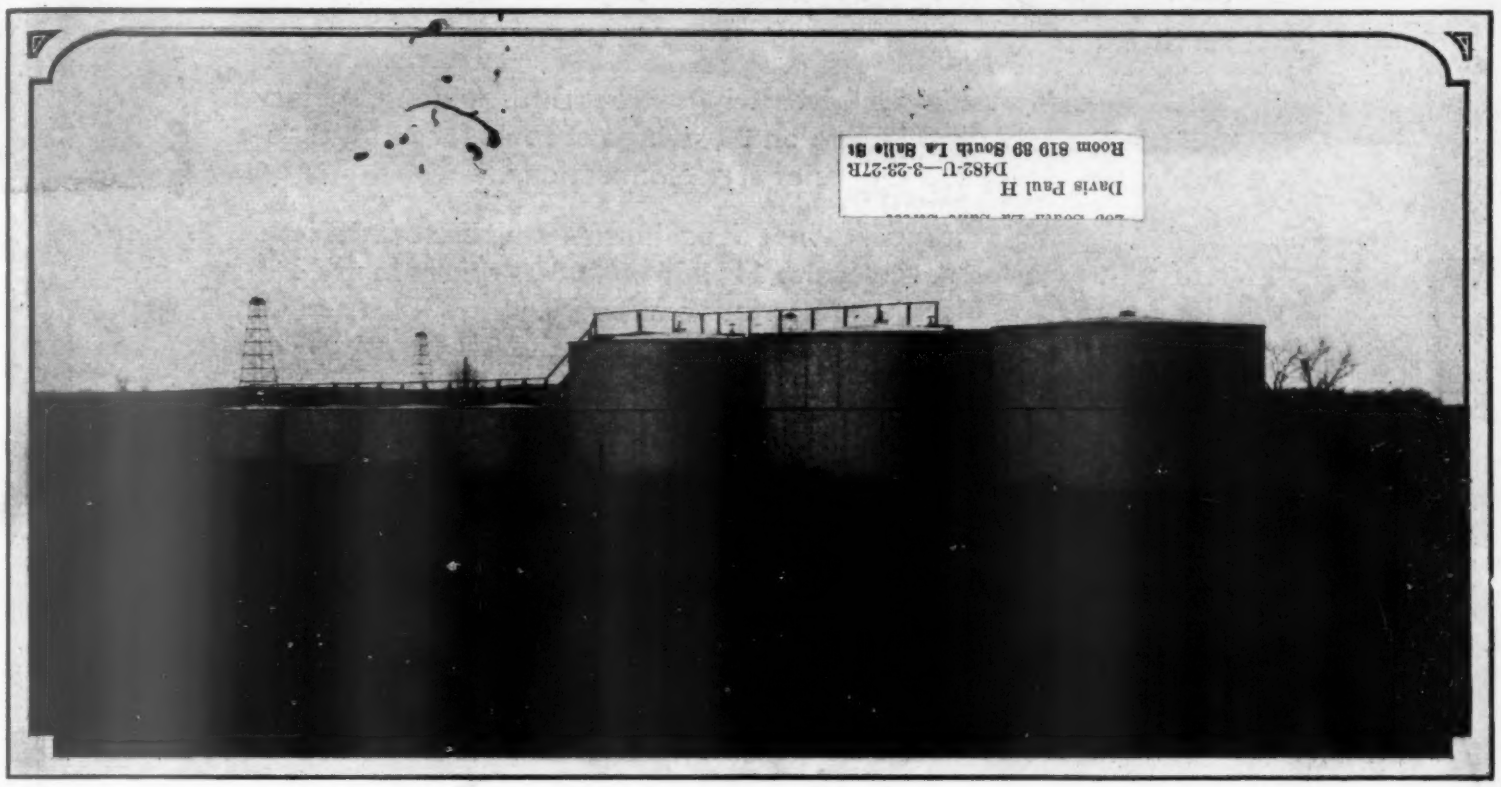

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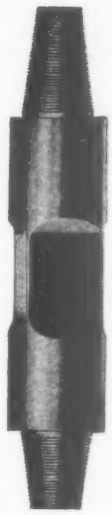

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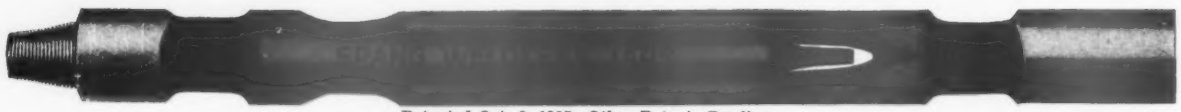

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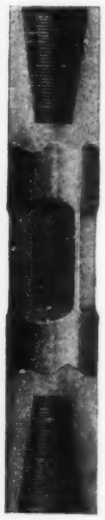

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PRODUCING REFINING MARKETING

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Oil Production Still On Upward Trend

Highest daily average estimated production week ended May 30, 1925, 2,347,984 bbls. Lowest in 1925, January 3, 1,911,730 bbls.

Considerable New Production Probable With Less Crude Being Withdrawn From Storage in the Mid-Continent

By Andrew M. Rowley

Highest daily average estimated light oil production in 1925, week ended January 17, 1,525,220 bbls. Lowest in 1925, July 18, 1,374,173 bbls.

The elements were responsible during the past week for a temporary relief from the steady increase in crude oil production, a big storm in the Salt Creek Field in Wyoming resulting in a drop in output there averaging nearly 18,000 barrels daily. There would have been an increase in production but for this storm, the old Spindletop Pool in the Gulf Coast staging a great comeback after producing crude for 25 years and averaging 28,000 barrels daily last week, most of this crude coming from the recently discovered deeper zone.

With the arrival of summer and the vacation season a slight slowing up of major developments may be expected. There is also being experienced a "softness" in the crude market, due probably to the fact eastern buyers are not taking as much oil as they did several weeks ago. As a result considerably less crude is being withdrawn from storage in the Mid-Continent, it being estimated only about 35,000 barrels daily is being pulled from tanks in Oklahoma and Kansas, while two months ago it was figured about 135,000 barrels daily was being withdrawn from storage in these two States. The cut in prices of Pennsylvania crude is regarded as a local condition without any effect, except possibly from a psychological standpoint, upon the remainder of the country. Pipelines in the East are believed to have considerable crude on hand which the owners have been reluctant to sell.

With production showing no tendency to decline and all indications pointing to further increases, due to the development at Spindletop and the Texas Panhandle, and less crude being withdrawn from storage in the Mid-Continent area, the crude oil situation will bear careful watching. The opening of a new pool near Mexia, Tex., and the completion of a big producer in Upton County, Texas, show what may happen overnight in the oil business.

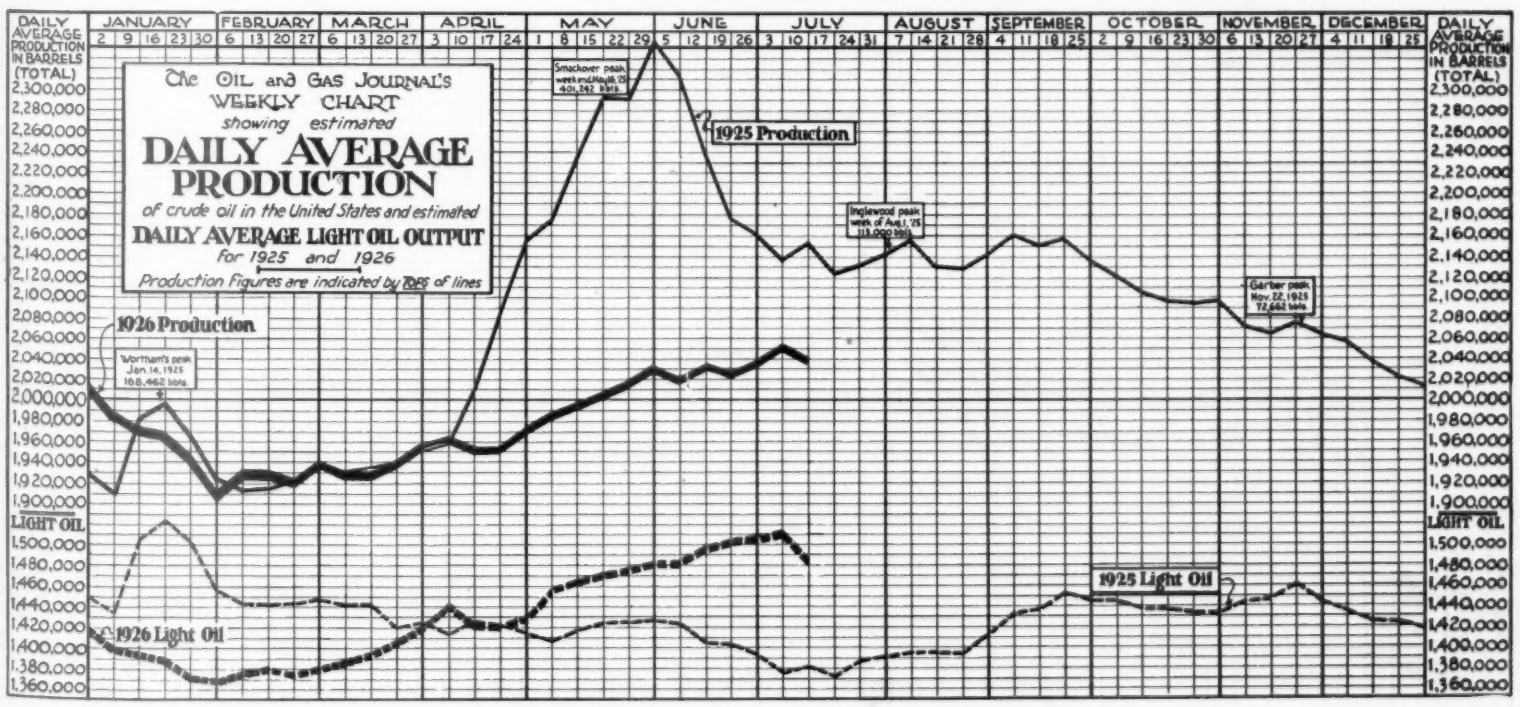
It seems assured at this time production during the last half of this year will exceed that of the first half. Crude oil prices at the present time appear to be firm but it must be remembered these prices are fixed by supply and demand and when crude oil starts to go into storage, prices certainly will be reduced. If Spindletop reaches a production of 50,000 barrels daily by August 1, as some operators claim it will and with active development of the Texas Panhandle and around the new well near Mexia, it would not be surprising to see a material increase in production during the next month.

PRODUCTION IN THE UNITED STATES

Estimated daily average production of light and heavy gravity crude oil in the United States for week ended July 10, and a comparison with the previous week follows:

	July 10		July 3	
	Light	Heavy	Light	Heavy
Oklahoma—				
Tonkawa	40.115	.....	42,145	.....
Burbank	44,245	.....	44,800	.....
Other Osage Fields	34,320	.....	34,360	.....
Cushing and Shamrock	21,610	.....	21,660	.....
Bristow and Eastern Bristow	29,680	.....	29,700	.....
Cromwell	17,245	.....	17,420	.....
Garber	34,515	.....	34,550	.....
Blackwell-Braman	16.870	.....	17,380	.....
Davenport	8,540	.....	9,260	.....
Wewoka	29,270	.....	29,600	.....
Northern Miscellaneous	111,335	.....	111,745	.....
Southern Fields	65,710	.....	65,500	.....
Total Oklahoma	453,455	.....	458,120	.....
North Louisiana	42,870	14,700	43,765	16,500
Arkansas—				
Smackover Light	16,005	.....	16,240	.....
Smackover Heavy	.....	124,650	.....	125,195
Miscellaneous	23,475	.....	23,895	.....
Total Arkansas	39,480	124,650	40,135	125,195
North Central Texas	175,105	.....	174,147	.....
Texas Panhandle	54,376	.....	52,835	.....
Powell	29,634	.....	29,600	.....
Mexia, Currie, Richland, etc.	15,415	.....	15,600	.....
Wortham	7,900	.....	8,500	.....
Kansas	109,585	.....	109,270	.....
Total Mid-Continent Area	927,820	139,350	931,972	141,695
Gulf Coast	.....	119,915	.....	107,070
Southwest Texas	.....	39,440	.....	38,530
Eastern	106,850	.....	108,100	.....
Rocky Mountain Area	96,532	.....	114,245	.....
California—				
Santa Fe Springs	49,000	.....	48,500	.....
Long Beach	107,000	.....	108,000	.....
Huntington Beach	44,000	.....	44,500	.....
Torrance	6,000	23,000	6,000	23,000
Dominguez	20,500	.....	21,000	.....
Rosecrans	16,000	.....	16,000	.....
Inglewood	28,500	20,500	28,500	21,000
Ventura Avenue	45,500	.....	44,500	.....
Remainder of State	41,000	210,000	40,800	210,200
Total California	357,500	253,500	357,800	254,200
Total United States	1,488,702	552,205	1,512,117	541,495
Grand Total		2,040,907		2,053,612

Total Decrease, 12,705 Bbls.; Light Oil Decrease, 23,415 Bbls.


The OIL and GAS JOURNAL'S
WEEKLY CHART
showing estimated
DAILY AVERAGE PRODUCTION
of crude oil in the United States and estimated
DAILY AVERAGE LIGHT OIL OUTPUT
for 1925 and 1926
Production Figures are indicated by DOTS of lines
1926 Production
1925 Production
1926 Light Oil
1925 Light Oil
Smackover peak week ending May 16, 1925 401,242 bbls.
Inglewood peak week of Aug. 1, '25 113,000 bbls.
Garber peak Nov. 22, 1925 72,662 bbls.
Wortham's peak Jan. 14, 1925 108,462 bbls.
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
DAILY AVERAGE PRODUCTION IN BARRELS (TOTAL)
LIGHT OIL

WHAT AND WHERE TO BUY—PAGES 157-158-159

Buying Strengthens Group 3 Kerosene

Purchases Exceed 5,000,000 Gallons. Gasoline Demand Fair and Naturals Improved. Other Products Slightly Changed

By Nell Williams

With unexpected purchases, estimated at more than 5,000,000 gallons from the entire Mid-Continent, kerosene again became the center of play in the Oklahoma (Group 3) refined market the past week. After suffering a weakening of 5 cents from a 10¼-cent market in the past six weeks this product Tuesday was again in demand with the market at least a half cent higher and stronger than a week ago.

Several buyers were in the market the past week. Chief among these was the Carter Oil Co. (Standard Oil Co. of New Jersey) which placed orders for between 2,000,000 and 3,000,000 gallons of 41-43 water white kerosene. Other buyers, including the Sinclair Refining Co. and the Carson Petroleum Co., brought the total amount to at least 5,000,000 gallons, a large part of which was from Oklahoma refiners.

The kerosene was bought at prices ranging from 5¼ to 5¾ cents. Early orders were placed at the lower figure but as additional material was sought the buyers found it necessary to pay as high as 5¾ cents.

With the removal of 5,000,000 gallons of kerosene from the Mid-Continent stocks, this product is back on a fairly firm basis. Several refiners, who have had excessive quantities on hand for several weeks, are out of the market, and as a whole a generally better tone is indicated for the remainder of the summer.

There also is a much improved demand for kerosene from jobbers and marketers for domestic and industrial consumption. With large buyers in the market and with the Standard Oil Co. of Indiana tankwagon reduced 2 cents the previous week, these domestic and smaller buyers apparently have felt free to place orders.

It has been felt generally among sellers that kerosene was due for another spurt in demand this year during the harvest season in the northern states but buyers have been holding off as long as possible, it is believed, because of the uncertainty of the tankwagon market.

It became known this week that a number of marketers became anxious after the tankwagon reductions to buy kerosene long over the coming month believing this product an exceptionally good buy at the market price early last week of 5¼ to 5½ cents. A number of such purchases have been made in the past few days and now the market is fully a half cent above the prices paid for this long material.

Gasoline Markets

There was nothing startling in gasoline markets during the week. The jobber demand was fairly active and a good volume of business was placed with most refiners but the orders were not up to expectations so the situation in this respect was not entirely favorable.

Refiners on the whole were making every effort to maintain a steady market but a number of leaks became apparent as stocks of some sellers began to pile up. It had been hoped that the purchases of motor fuel, amounting to several million gallons, by several large Mid-Continent refiners the previous week would prove a starter for additional domestic buying which would assure Oklahoma refiners of a gradual market strengthening during July.

So far the buying has not been sufficient to impart any greater impetus to the gasoline market than that already

(Continued on Page 136)

REFINED MARKET BAROMETER

Refined markets of the country with few exceptions were more or less steady during the week. Some weaknesses developed and a few products strengthened in some areas but on the whole prices were unchanged. Gasolines, however, were generally uncertain as to definite trends due to a few bearish developments in some refining centers but consumption and demand was active. Kerosenes received a play in the Mid-Continent with substantial purchases from several large buyers but in other areas the general situation was unchanged. Fuel oils were not particularly in demand, except in a few areas due to local conditions, but prices were held almost generally. Natural gasolines showed improvement in small inquiries. Gas oil and distillates continued firm being aided by renewed demand for cracking stock. Lubricants on the whole steady.

Mid-Continent—Substantial purchases strengthened kerosene following 5-cent drop in prices in six weeks. Prices a half-cent higher than a week ago. Gasoline demand fairly active and markets steady. North Texas motor fuel softer but export purchases hold higher gravities. Natural gasoline tone improved with increase in small inquiries. Fuel oils generally unchanged except in north Texas where buying strengthens situation locally. Gas oil stronger in Oklahoma and Texas due to demand by several large buyers. Distillates firm. Lubricants steady. Wax softer.

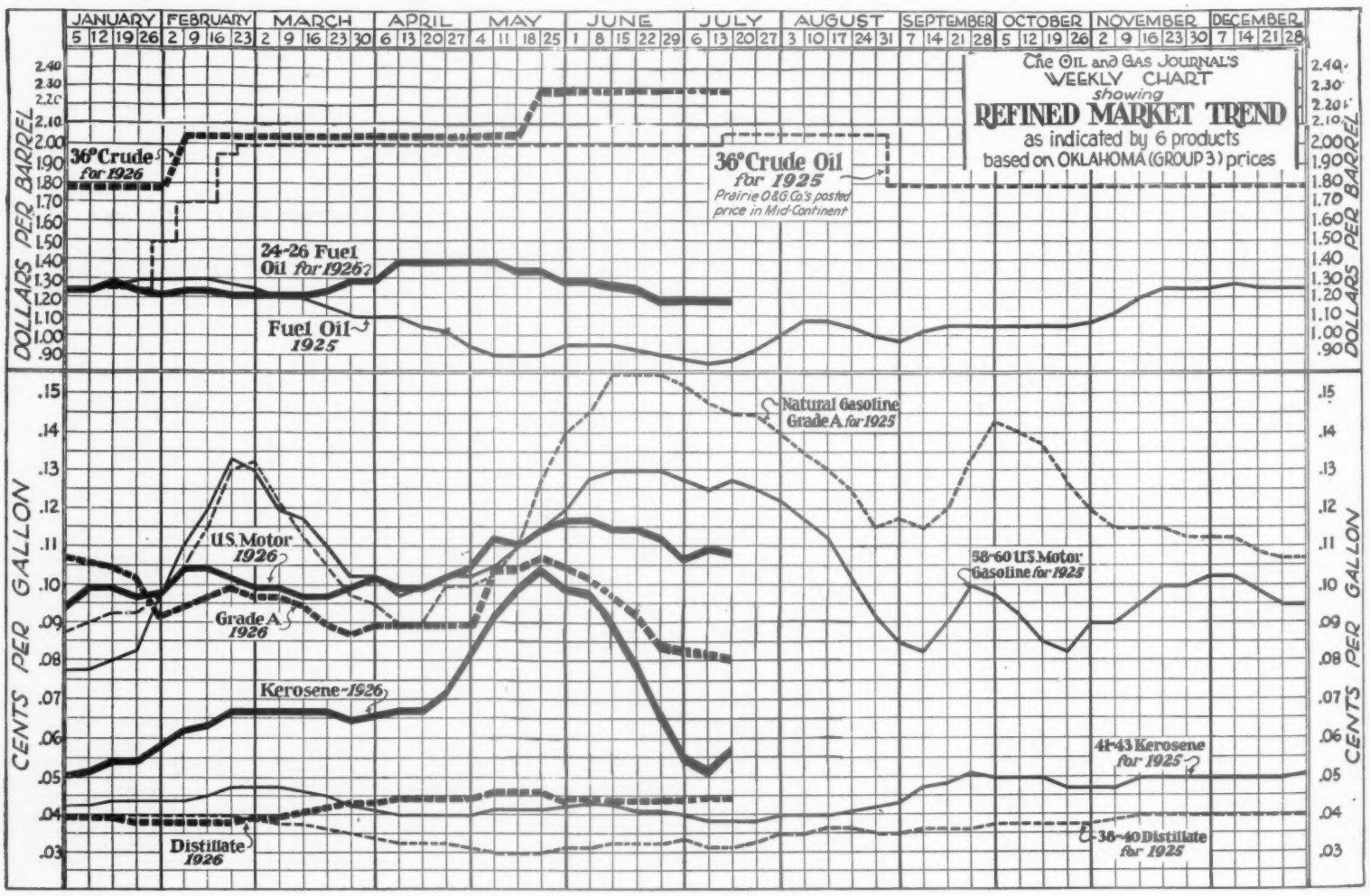
Atlantic Seaboard—Gasoline market steady but Pennsylvania crude cut causes some uneasiness. Kerosene weaker following export price reduction. Lubricant demand satisfactory Export market on gasoline and kerosene slow. Other products unchanged.

Pennsylvania—Failure of refined market to show further weakness after general Pennsylvania crude cut causes better feeling. Gasoline prices slightly lower on some grades than a week ago but demand improved. Kerosene demand slower. Wax strong. Other products unchanged.

Chicago—Gasoline consumption good but demand on sellers not up to expectation and jobbers' storage believed large. Kerosene demand growing and prices higher. Distillates firm. Gas oil steady. Fuel quiet. Lubricants little changed.

California—Gasoline more or less uncertain due to bitter retail competition but consumption good. Natural gasolines strong with contract sales active.

Gulf Coast—Lubricant demand slower. Prices shaded on 500 and 750 viscosity pale and red oils.


The OIL and GAS JOURNAL'S
WEEKLY CHART
showing
REFINED MARKET TREND
as indicated by 6 products
based on OKLAHOMA (GROUP 3) prices
JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER DECEMBER
DOLLARS PER BARREL
CENTS PER GALLON
36° Crude for 1926
36° Crude Oil for 1925
Prairie O&G Co's posted price in Mid-Continent
24-26 Fuel Oil for 1926?
Fuel Oil 1925
Natural Gasoline Grade A for 1925
U.S. Motor 1926
Grade A 1926
58-60 U.S. Motor Gasoline for 1925
Kerosene-1926
41-43 Kerosene for 1925
Distillate 1926
36-40 Distillate for 1925

Japanese May Establish Oil Monopoly

Quasi-Government Organization Said to Be Planned to Handle All Petroleum Production and Receive All Imports

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., July 12.—Conditions in Japan in respect to the oil industry appear to be approaching those of other countries in which the government has undertaken to establish a monopoly of the petroleum industry. The action of the Rumanian Government, Argentina, Mexico, France and Turkey, and most recently Italy in this respect is well known.

To a greater or less extent these governments have been reaching out for control of the industry in all respects.

Recently travelers from the Far East have brought to this country evidences of this policy as one that is in the making in Japan. How far it will go is to be seen. Advices just received from the Far East are of similar import so that the American petroleum industry should not be surprised if it learns that the Japanese Government has taken steps in the direction of monopolization of petroleum.

Indications of Tendency

One of the indications of this tendency relates to the major industry of Taiwan. The Tokyo Press and the publications of Taiwan have been filled recently with discussions of the extension of a monopoly of petroleum which are taken as an indication, because of the nature of the statements, that the Japanese Government is very receptive to this sort of reasoning. Not only do these publications indicate the control of the industry in respect to the importation of oil, but also in relation to the drilling operations in Taiwan.

The Japanese Navy Department has formulated for submission to the government an oil policy which includes the exploitation of oil lands in the empire, investigations of oil lands in foreign countries and efforts to obtain concessions abroad and the buying and storing of oil.

The Japanese publications advocating a closed industry refer to other Nationals obtaining oil concessions.

One plan that has been given great attention provides that the Tokyo Government shall take over all oil industries through a quasi-government organization to be capitalized at yen 100,000,000 and this organization, it is proposed, shall enjoy the sole right of oil production and sales within the Japanese Empire. The plan contemplates the combination of all oil companies in the Japanese Empire, all government activities in that respect to be transferred to the quasi-government organization. The capital is to be subscribed 60 per cent by the public and 40 per cent by the government; the government to lend working capital to the company at the lowest rate of interest. All equipment belonging to foreign oil companies in the Empire is to be bought by the new company and agency rights only to be granted to foreign companies for oil importation.

May Restrict Imports

The exact plan that may be adopted cannot be foretold, but it seems certain that foreign companies will not be permitted to import their product to anyone in Japan except the company holding the monopoly.

These discussions have convinced many people that it is only a matter of time when there will be a change in policy in respect to oil both in Japan proper and in Taiwan.

"As the empire is not likely to produce, at least for some years to come, enough crude oil for its requirements, and as it desires to purchase the needed crude as well as refined products at the lowest possible price, there is a deep and growing dissatisfaction with the high prices sustained, it is alleged, by agreement between the large important companies," states a correspondent, intimately familiar during recent years with conditions in Japan, whose letter is in the hands of the writer.

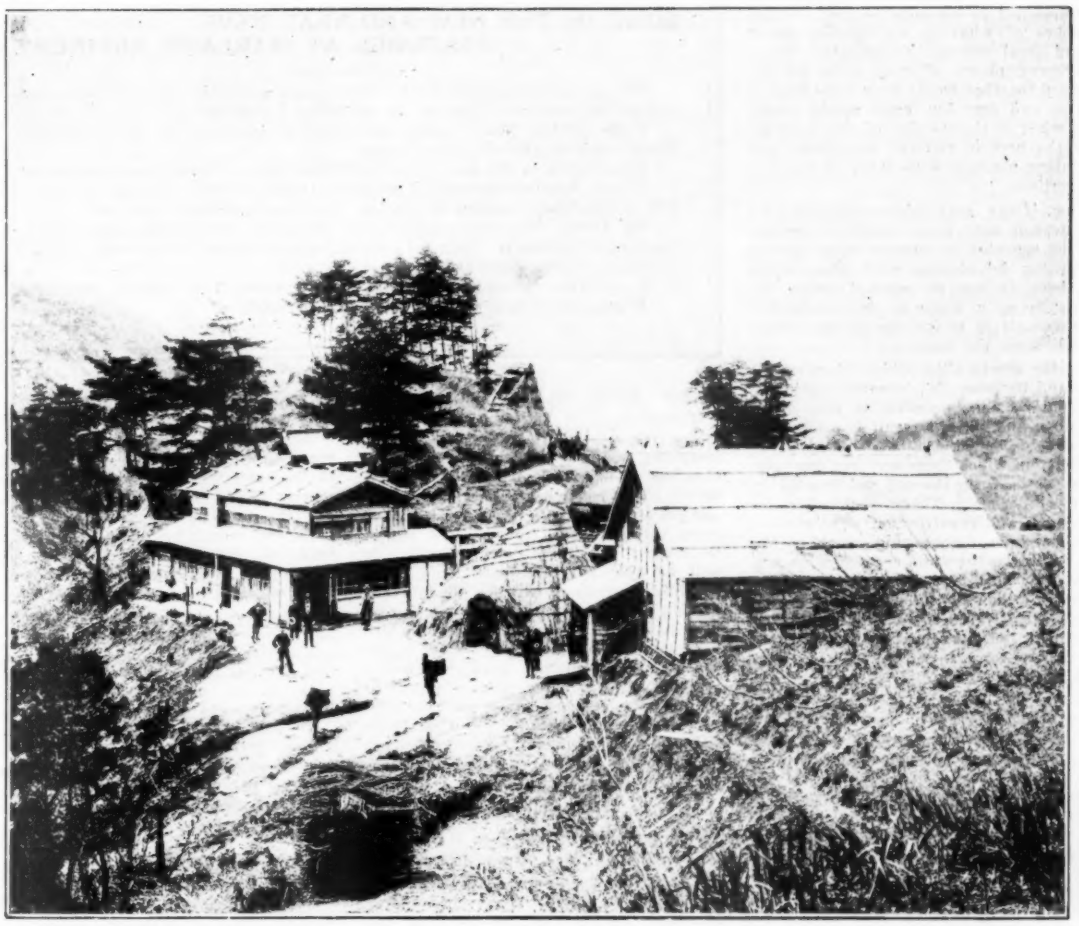
This correspondent indicates agitation in Japan quite similar to that which is frequently heard where the oil industry operates although no basis for charges that prices are unduly high are submitted nor does such proof seem to be especially desired by those who make the charges. The idea of the Japanese seems to be that by limiting foreign oil importation, except by one company, they can control prices as well as production, but it is not clear whether the government will be expected to derive a revenue from this source or not. Just how the elimination of competition by foreign companies will result in lowering prices is not evident, but there is vague suggestions of a contract by the government with its quasi-government oil monopoly which will control all such matters.

It is very clear that the future of the American oil industry in Japan and in Taiwan is rendered quite uncertain.

Japan's Petroleum Imports

In discussing the importance of the establishment of a petroleum monopoly in Japan, it must be remembered that the Japanese Empire which in addition to Japan includes Taiwan (Formosa), Chosen (Korea), the leased territory of Kwantung and the southern half of Sakhalin Island, has a total population of nearly 80,000,000. It furnishes an annual mar-

(Continued on Page 133)



Conical structure over hand-dug oil well in Urase oil field, Japan, before the introduction of American methods.

MEXICO HAD ONE 10,000-BBL. WELL AND ONE ESTIMATED GOOD FOR 5,000

By George Blardone

TAMPICO, Mex., July 9.—The past week found 16 wells completed in Mexican fields, with 8 producers and 8 failures. New potential production can be placed at 16,575 bbls. The best well of the week belongs to Transcontinental Petroleum Co., which drilled in its No. 22-A Delicias, in the old Panuco Pool, at 1,660 feet, good for 10,000 bbls. This is a shallow depth and therefore is considered a good well. This is the only northern fields well that is worth while, however. Huasteca Petroleum Co., in the south fields, has the next best well of the week, with its No. 79 Cerro Azul, which was finished at a subsea level of 1,331 feet, good for 5,000 bbls.

These two wells sum what has been worth while in Mexican fields the past week. To continue, in the northern fields consider the following: Mexican Gulf Oil Co.'s No. 18 Flores, in the Panuco Field, is good for a few barrels at 1,820 feet. International Petroleum Co.'s No. 271, Lot 5 Cacalilao, is good for 50 bbls. at 2,250 feet. Tampascos Oil Co.'s No. 12, Lot 11 W. Maguabes, is good for 200 bbls. at 1,810 feet. And, in the Topila sector, Cia. Pet. de Pet. Financiera, No. 2, Lot 14 Paciencia de Aguacate, is good for 300 bbls. at a finishing depth of 2,400 feet.

In the Federal zone sector of the Panuco River, National Lines' No. 62 Lopez, is a fluid well good for perhaps say 800 bbls. at 1,748 feet.

In the Corcovado sector, Transcontinental Petroleum Co.'s No. 28, Lot 6, is a finished well at 1,970 feet, good for 300 bbls.

The Failures

The holes that failed were confined to the northern fields. Consider the following: In Ebano, Mexican Petroleum Co. had its No. 51 Chijol for a dry hole at 2,422 feet; its Nos. 106 and 109 La Dicha at 3,002 and 2,345 feet respectively; its No. 22 San Pedro is also a dry hole at 2,225 feet. In the Topila sector, Mexi-

(Continued on Page 132)

XUM

Finish Marland Enlargement Program

Refinery Now One of the Most Modern With Large Gasoline Output. Several Innovations in Equipment

By C. O. Willson

Every plant operator possessed of imagination, at least once in his lifetime, has designed in his mind or made actual sketches of what in his opinion would be an ideal refinery to operate. These imaginary plants if they were all assembled together would vary somewhat in design and size but each would represent what in the opinion of one operator was the best in refinery equipment and operating methods with many of his own innovations.

Few, if any, ever achieve this ideal for the reason that it is usually necessary for the operator to combine what modern apparatus he obtains with that which has been in use for several years, the whole being a more or less makeshift arrangement in which the old equipment overshadows the new.

At the Ponca City, Okla., plant of the Marland Refining Co., however, a $4,000,000 enlargement program is now about complete and the net result is a complete refinery of 25,000 to 30,000 barrels daily capacity in which there are very few compromises between the old and new in refinery practices. Those responsible for its design and construction were given a free hand in determining what in the end would be the most economical equipment to install and as a result the refinery now has the appearance of a new plant. Relatively little old equipment was discarded but that utilized was rebuilt where necessary to fit it with the general efficiency program.

Not only does the plant incorporate many of the latest developments of proven worth but in several phases of the operation, entirely new equipment and methods are being utilized. In designing the improvement program the Marland engineers incorporated many of their own ideas and the commercial processes installed were designed in line with their requirements. This article is mainly concerned with those developments in which the Marland organization has pioneered.

The improvement program was carried out under the direction of the company's manufacturing department which is headed by Walter M. Miller, vice president.

Mr. Miller needs no introduction to the refining fraternity generally. He has been in charge of the Marland refinery for several years, a period covering its growth from a small skimming plant to its present position as the largest producer of gasoline in the Mid-Continent Field, and one of the major refineries of the entire industry.

Skimming Plant

Although probably not the most interesting feature to a majority of plant operators, the writer will start the description of the refinery at the skimming plant and then follow the several unfinished cuts through the additional processing which takes place before the finished products are obtained. The lubricating plant which has been enlarged but which does not differ in the main from other Mid-Continent plants will not be discussed in this article.

The new skimming plant, only half of which has been completed, consists of two Foster pipe stills each having a capacity of 10,000 barrels of crude daily. The unit in operation is equipped with three Badger towers so that 60 to 65 per cent of the charge is taken overhead. The fractionation equipment is flexible so that all grades of gasoline, kerosene and gas oil can be obtained.

One of the interesting features of this unit is the use made of Braun heat exchangers resulting in a low fuel cost. These exchangers are used to handle both the liquid and vapors so that a large part of the charge is distilled and fractionated before the liquid passes to the pipe still.

SOME OF THE NEW AND NEAR NEW FEATURES AT MARLAND REFINERY

Ten by sixty-eight-foot bubble type tower with pipe still which fractionates six products with bottoms not exceeding 7 to 10 per cent of crude charge.

Three 18-ton Gray towers for treating vapors from two 2,000-bbl. Cross cracking units in vapor phase.

Elimination of the high towers of Dubbs units. Towers rest on ground.

Use of Schnible centrifugal plates in Dubbs towers. Velocity of vapors give a centrifugal motion separating the heavy and light ends.

Six Dubbs units charged from one header by electrically driven pump. In case of failure of electrical power, pump load is automatically shifted to steam turbine stand-by.

Use of Hughes drilling apparatus to remove coke from reaction chambers.

Wiggins floating roofs on all run-down tanks.

For the second unit, the company is installing a tower which in size resembles the smoke stack of the average refinery. This tower is 10 feet in diameter and 68 feet high. Equipped with bubble trays this mammoth tower could almost be termed a refinery within itself. It will be able to fractionate from crude gasolines, kerosene, light gas oil, lubricating oil, distillate and cylinder stocks running to a low gravity flux bottom which will not exceed 7 to 10 per cent of the charge. Those familiar with the number of shell stills, towers, etc., required at the average refinery to secure the same results from a similar amount of crude will realize the compactness and efficiency of this unit.

Cracking Equipment

Fleming, Gross and Dubbs units constitute the cracking facilities of the Marland refinery. The former has been in operation at the plant since 1922 and the latter two which were recently placed in operation are the last word in two well known processes. This unique combination of cracking equipment was decided upon after a thorough investigation of the needs of the refinery and the uses to which the three processes were particularly adapted.

As shown in illustrations 1 and 2, this cracking equipment consisting of a total of 26 units with a capacity of approximately 15,000 bbls. daily, is located in a straight line across the railroad tracks from the remainder of the refinery. An organization separate from the main plant except for supervision with its own offices, operates the cracking plant.

The company since the fall of 1922 has had in operation 18 units of the Fleming process, the largest single installation of that process ever made. This process belongs to the shell type, the distillation taking place in perpendicular high pressure stills with a capacity of approximately 300 bbls. each. This equipment in the refining world has given way during the past two or three years to the tube and tank type, no new installations having been made for some time.

However with the improvements made by the Marland engineers these units have given satisfactory results and it was decided to continue their operation. The two most important changes in the Fleming equipment have been the installation of a preheater and doubling the size of the baffle towers.

The preheater consists of a pipe still arrangement by which the charging stock is brought to a temperature of 400 degrees Fahrenheit before entering the shell still. This lessens the time required to get the units on stream and has increased their capacity. This preheating also assures that the charging stock is dehydrated before entering the shell still. It is believed that the presence of moisture was responsible for some of the disastrous explosions which have occurred at other installations.

Enlarging the size of the baffle towers aided in increasing the capacity of the units and also made possible the securing of lower end point pressure distillate. The process produces a pressure distillate of excellent quality from the standpoint of gasoline yield and ease of treating.

The eighteen units, which have a capacity of 5,000 barrels daily, handle a heavy gas oil cut which is obtained at the present time in reducing the lubricating oil stock. With this stock a yield of 50 to 55 per cent pressure distillate is obtained. The latter when rerun gives a gasoline yield of 75 per cent, resulting in a gasoline yield based on charge to stills of 35 to 40 per cent. This original charge consists of about 60 per cent new stock and 40 per cent recycle stock, the latter being taken from the shell still after a run. The bottoms are a good grade of commercial fuel oil from 18 to 20 gravity.

Cross Units

The two Cross units each have a capacity of 2,000 barrels, this being double the size of the ordinary unit. The units have Foster tube stills. This is said to be the first time this type of still has been used with the Cross cracking process. The units have all the latest equipment which have greatly simplified the operation of the Cross process with numerous instruments which automatically control all the operating features, including the end point of the finished gasoline.

This installation includes a reboiler arrangement in the base of the bubble tower which assures efficient stripping of the recycle stock and the maximum gasoline production.

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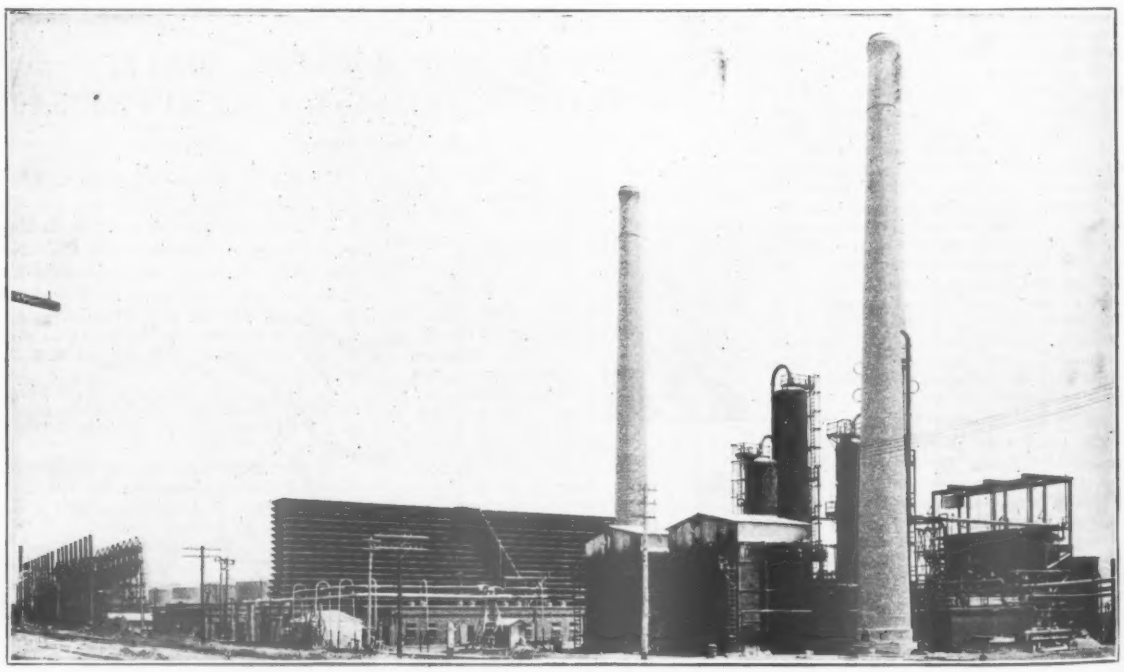

New Cross units of the Marland Refining Co. The three Gray towers used to treat the cracked gasoline in the vapor phase are shown to the rear of the Cross units. On the extreme right 18 Fleming cracking units are shown. The large cooling tower handles the water from the cracking units

New Pool Opened West of Mexia, Tex.

Transcontinental Oil Co. Starts New Fault Pool With a 2,800-Bbl. Well. Narrow Streak of Indeterminate Length

By Special Correspondent

MEXIA, Tex., July 12.—The Transcontinental Oil Co. opened another Mexia Fault Pool last Thursday when its No. 1 Rossen, on the Pedro Varela Survey, about 5 miles west of here, came in producing 123 bbls. an hour from the Woodbine sand topped at 2,836 feet and drilled in only 8½ feet.

The Transcontinental Oil Co.'s discovery well on the Nigger Creek structure starts off with a greater production than that credited to the Boyd Oil Co.'s No. 1 Boyd, in Limestone County, which opened the Wortham Field in the fall of 1924. No. 1 Boyd was a 2,500-bbl. initial producer, but it fell off rapidly to 800 bbls. a day. The Boyd Oil Co.'s No. 1 Simmons, the second well in the Wortham Field, started at 8,000 bbls. a day. There were many wells in the Wortham Field which started from 5,000 to 12,000 bbls., and wells of 5,000 to 10,000 bbls. in initial production were numerous in both the Mexia and Powell Fields. In the latter there were several wells which were estimated at 15,000 bbls. or more in initial production.

Close to Pipelines

The Transcontinental Oil Co.'s No. 1 Rossen was drilled 1,500 feet from the Prairie Pipe Line Co.'s 8-inch line from Mexia to Jacksboro. The line has not been used for some time as the Prairie Oil & Gas Co. is running its east central Texas oil southward through the Pure Oil Co.'s line of which the Prairie Pipe Line Co. is a half owner. It needed only 1,500 feet of 6-inch line from the 8-inch line to the well and this was laid with the Prairie's usual top-speed and the well was connected and the oil turned in at 11 o'clock Thursday night, seven and one-half hours after it came in. The well was gauged at intervals and continued to flow around 123 bbls. an hour during the night and early Friday. The 24-hour gauge ending at 7 o'clock Saturday morning showed a total production of 2,779 bbls. in that time, or an average of 116 bbls. per hour. In the 24 hours ending Sunday at 7 a. m., the well made 2,837 bbls. and in the 24 hours ending at 7 o'clock this morning it produced 2,714 bbls. The temperature of the oil is 97 degrees. There was no water. The oil is 39.9 degrees in gravity, corrected. Mexia crude was 35 to 36.5 degrees in gravity; Currie, 41 to 42 degrees; Richland, 38.5 degrees; Wortham, 39.5 degrees; Powell, 36 to 37 degrees, so that the oil from the Nigger Creek structure compares favorably with the other east central Texas crudes produced along the Mexia fault.

Flows by Gravity

The oil flows by gravity to Mexia and will be handled through the Pure pipeline from there south to the Gulf. The Prairie Oil & Gas Co. is the purchaser and is paying Mid-Continent prices for the crude, which on a basis of 39 gravity is worth $2.53 per barrel.

The Sinclair Pipe Line Co.'s line from the Mexia Field also runs close to the new development and the Humble, Texas, Magnolia and Gulf pipelines are all near enough to serve the new field if it develops a production big enough to warrant their laying lines a few miles. The Prairie alone can handle 12,000 bbls. by gravity to Mexia and with the nearby Sinclair pipeline, all the oil the field will produce for some time can be easily taken care of.

The Transcontinental Oil Co.'s No. 1 Cochran, offsetting the discovery well, will soon be completed. It was reported to be coring about 50 feet above the top of the sand.

History of Nigger Creek

The history of the exploration of the Nigger Creek structure dates back to the drilling of a test on one of the Rossen tracts following the development of the Mexia Field. This test, which is shown on the accompanying map as a dry hole, found Woodbine sand with a hole full of water at a total depth of 3,509 feet. Heath M. Robertson and Leon J. Pepperburg, geologists of Dallas, Tex., studying the log of this well concluded that it was on the down throw of a fault distinct from the Mexia fault and they called the attention of another geologist, William E. Wrather of Dallas, to the fact, and he was so impressed with it that he advised the Transcontinental Oil Co., with which he had formerly been associated as a geologist, to test out the territory to the east. The company put on a leasing campaign and when all was set the first test, No. 1 Ross, was started. This test found the usual formations in the Mexia district all lying in regular form and depth, and at 2,889 feet located the Wood-

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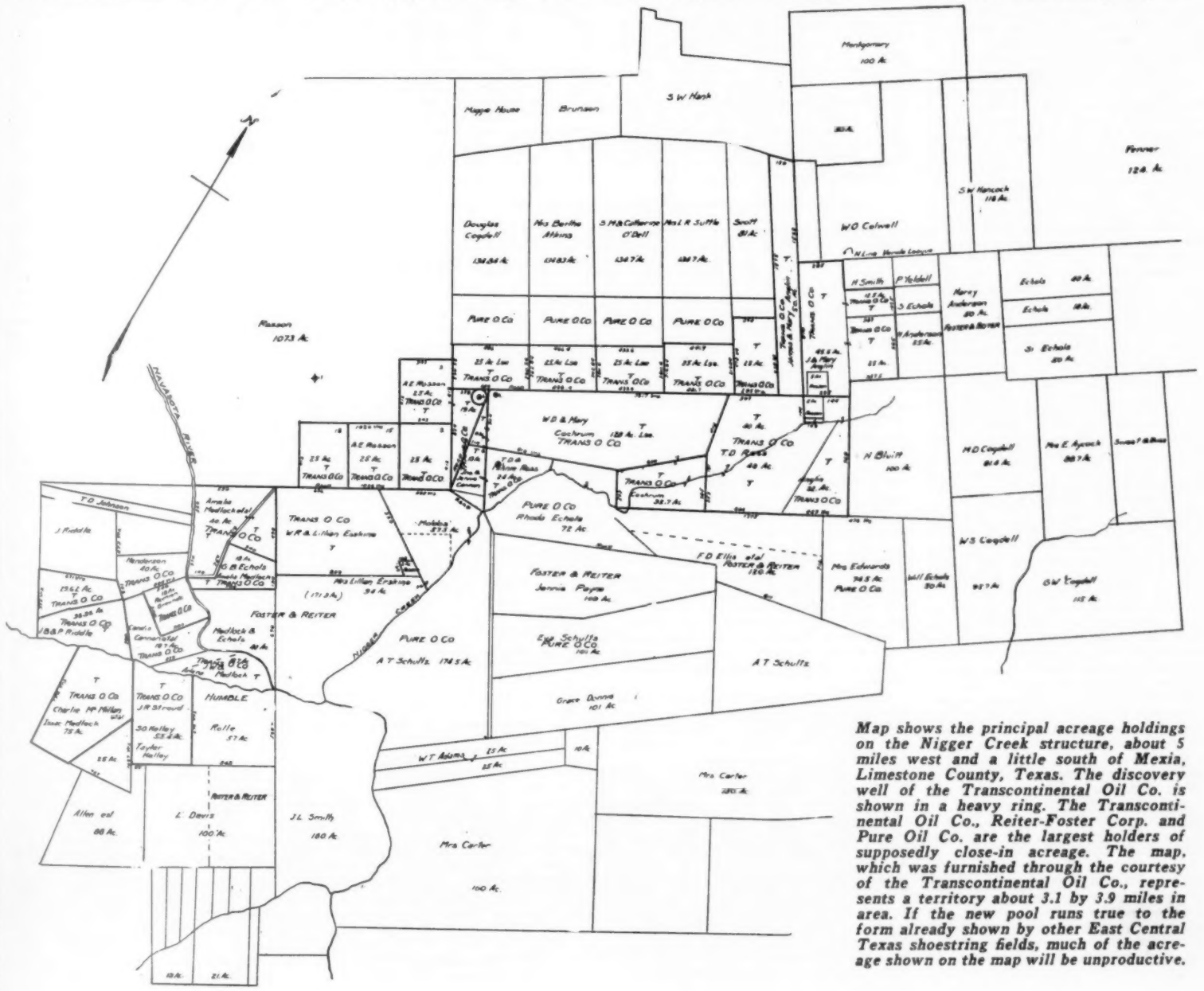


Map shows the principal acreage holdings on the Nigger Creek structure, about 5 miles west and a little south of Mexia, Limestone County, Texas. The discovery well of the Transcontinental Oil Co. is shown in a heavy ring. The Transcontinental Oil Co., Reiter-Foster Corp. and Pure Oil Co. are the largest holders of supposedly close-in acreage. The map, which was furnished through the courtesy of the Transcontinental Oil Co., represents a territory about 3.1 by 3.9 miles in area. If the new pool runs true to the form already shown by other East Central Texas shoestring fields, much of the acreage shown on the map will be unproductive.

XUM

Sees Over-Supply of Crude in 1926

Osborn Expects 100,000-Bbl. Daily Increase in Next 90 Days. Discusses Methods of Estimating Future Supply

By C. Campbell Osborn
Petroleum Engineer

Analysis of the factors in the present oil situation leads me to the belief that there will be an increase of 100,000 bbls. per day in new supply during the next 90 days. This is a matter which oil companies should seriously consider in the formulation of policies.

The price of oil is higher than it has been for five years; an active wildcatting campaign is under way and promising discoveries are being reported from time to time; the production in many old fields is being carefully worked over and increased; several active comparatively new sands, notably at Garber, Braman and Wewoka, Okla., and several other places throughout the oil regions will increase their production; trunk pipelines are being built into the new oil region of southwest Texas; west Texas is very active, and the Panhandle, as all know, is a major field which will be held back only by the transportation situation. Consideration of these factors and careful analysis of the situation leads me to the belief that new supply of oil, including imports, by fall or early winter will be in the neighborhood of 2,350,000 bbls., which will approximately equal demand, and when the winter or spring slump in demand comes there will be overproduction and lower prices.

Result of Careful Study

I made this statement regarding increased production with a feeling of assurance. It is not a haphazard guess based upon a hunch, but the result of a careful study of all of the fields in the United States covering a period of 18 months. During this period 90-day estimates have been made at intervals of 30 days as a check upon the methods employed, and the average error during this period has not exceeded 2 per cent, and during the greater part of the time has been below 1 per cent. This statement is not made in a boastful spirit, but as encouragement to petroleum engineers toward systematic effort in the attempt to forecast production for a modest period. The general method employed in arriving at the estimate of production cited is given in a paper prepared by the author in co-operation with J. M. Sands, consulting geologist of the Phillips Petroleum Co., for the 1926 meeting of the American Institute of Mining Engineers, and not heretofore published in any oil trade journal. The features of the paper are as follows:

Measuring Future Supply

"Petroleum production, under the competitive economic system, has always been inherently characterized by violent fluctuations that have been reflected in the prices of the crude oil and its refined products. These repeated changes have been extremely disconcerting to the industry and grossly misinterpreted by the consumer. Accordingly, the need has long been felt in the industry for some means whereby the trend of future supply could be measured and policies could be formulated to meet or correct a surplus or shortage of crude oil. Obviously, the trend of demand is a part of the problem, but, as the methods of calculating it differ from those herein presented for estimating production, the subject is foreign to this paper.

"This paper is confined to the problem of predicting the volume of production for the whole country. The difficulties of attempting simultaneously to look into the future and underground, and to weigh human psychology and the interplay of economic forces, are patent to all. Mathematicians, geologists and engineers have been trying to solve the problem for many years and their efforts have been helpful, but on account of basically unsound or incomplete methods or the lack of adequate data, few of the estimates have been sufficiently close to production to warrant their use as an element in oil company policies.

"The purpose of this paper is briefly to outline the progress that has been made, and to show that, although the results attained by the best methods have been encouraging, there is need for improvement. This work is in its infancy; methods are crude and necessarily imperfect; and there is lack of adequate and up-to-date information. The chief value in the results lies in the light they throw upon the present limitations of forecasting and the direction in which improvement is needed. The methods are presented with the hope that they will be fully discussed and that many suggestions for betterment will be made.

Fundamental Considerations

"The three following basic facts have been established:

1. An error of 5 per cent or more will make an estimate more dangerous than helpful.

2. Accurate predictions for more than 90 days seem impracticable under present conditions.

3. Predictions not based upon detailed, known facts, are usually inaccurate to a degree that renders them hazardous.

"Five per cent of the current petroleum production is about 3,000,000 bbls per month, and a persistent overproduction or underproduction of this quantity will cause a change in price.

"Many forecasters have been overambitious. They have attempted to predict production for a year or two in advance, and the errors have varied from 5 to 30 per cent. The per cent of error in the estimates is sufficient evidence of weakness in method or lack of data. Consideration of the history of some of the outstanding oil pools discovered in recent years is conclusive. Powell, Tex., produced 315,000 bbls. per day within six months after discovery. The second sand at Smackover, Ark., was opened in February, 1925, and within four months the heavy oil production of that field exceeded 400,000 bbls. per day. Wortham and Mexia, Tex., became major pools within a few months after discovery. There are areas in the United States where oil pools may produce over 100,000 bbls. per day within a few months after discovery. Can pools of this type be foreseen and measured in long range estimates? With the present known methods of measuring the production of oil pools, an accurate estimate for more than 90 days in advance seems impracticable.

"No prediction, regardless of the length of the period to which it relates, or by whom made, can reasonably be expected to be accurate when loosely made upon the basis of supposition. Reliable, detailed, up-to-date information embracing all the factors that influence conclusions must be assembled and interpreted in the light of judgment and experience and with the proper recognition of the limitations of the various processes applied.

The Mathematical Method

"One group of students has attempted to solve the problem by making a projection of the total production based on mathematical curves of the exponential type. The mathematical process is not a safe indicator of the long range trend. Mathematics is essentially an exact science, and its formulas are not accurate indicators of the production of a commodity so largely influenced as oil is by human psychology and by the stimulating or retarding effect of price changes. The method is based upon the premise that production will increase at the rate which has prevailed in the past, and the curve must therefore be a rising one. The history of production proves that this is unsound reasoning for any specific year. Moreover, estimates of this sort have erred from 5 to 10 per cent within a few months after they were prepared. As will be explained later, curves of this type have value in the solution of the problem, but when used alone they are misleading.

"Another process that has been extensively employed for the purpose of forecasting production may be termed the modified decline curve method. As used by some students of the problem, the producing pools are given a decline according to the existing rate and an arbitrary allowance is made for new pools in sight. The decline curves have merits when confined to certain types of pools, but as an indicator of total future production this method is more susceptible of error than the pure mathematical process. It is well known that the production of most fields steadily declines after the flush yield has been taken during the early stage of development. The modified decline curve method, which is based primarily on this fact, necessarily shows a weakening in production within a few months after the calculations are made. The history of production shows that new fields are discovered and developed each year and there is no reason to expect an abrupt termination of new discoveries. The production of these new fields cannot be accurately predicted far in advance. Some estimates known to the authors to have been made according to this method erred to the extent of 10 per cent in six months and over 30 per cent within 18 months.

Composite Detailed Method

"The most satisfactory method that the authors have used is a combination of several former processes with additions and modifications that enable them to use more detailed data than was included in older methods. The estimates are made by pools for only 90 days in advance, and special consideration is given to new discoveries. The pools are divided as follows:

"1. Fields which have been defined and developed to the extent that production is declining at a relatively slow and uniform rate. The rate of diminution is considered sufficiently uniform to permit the use of pure mathematical projections of decline curves. The authors prefer curves of the exponential type plotted on semilogarithmic scales. The age at which fields enter this class depends on their character and state of development. Few, if any, however, should be so classified until at least one year after the peak of production has been reached, as the rate of decline cannot be accurately determined prior to this time. The comparatively new fields are estimated separately, but in older districts a composite decline curve may be applied to several pools having common characteristics.

"2. Flush fields in which development has proceeded to the extent that data are available showing their principal features, notably approximate limits, at least in some directions, character and thickness of sand, gas pressure and initial yield and rate of decline of individual wells. Current detailed information of this

(Continued on Page 132)

REFINERY SUPERINTENDENTS HOLD FIRST OF SERIES OF MEETINGS

PONCA CITY, Okla., July 13.—Twenty-five representatives of the Western Petroleum Refiners Association spent the day in Ponca City inspecting the refineries of the Marland Refining Co. and of the Empire Refineries, Inc., and are attending the meeting of the manufacturers' committee of the association. They are guests of Walter M. Miller, vice president of the Marland Refining Co., and H. W. Camp of Tulsa, general superintendent of the Empire Refineries, Inc.

The members met at the offices of Mr. Miller at 10 o'clock when C. L. Henderson, vice president of the Vickers Petroleum Co. of Wichita, and chairman of the committee, had charge. He stressed the importance of this being the first meeting of superintendents and operators. Mr. Camp gave an outline of the method in operating the Doherty cracking process. A trip through the Empire plant followed the meeting, with Mr. Camp in charge.

Tuesday afternoon the visitors were taken through the refinery of the Marland Refining Co. This trip was followed by a talk by Mr. Miller on the building program of the Marland company.

Those at the meeting were: C. L. Henderson, Wichita, chairman of the committee; Howard Benette, managing director of the association with headquarters in Tulsa; J. M. Wadsworth, superintendent of the Pierce Petroleum Co. at Sand Springs; W. O. Keeling, of the White Eagle Oil & Refining Co.; G. S. Dunham, also of the White Eagle company; W. C. Long, Golden Rule Refining Co. of Wichita; O. S. Ambrose, Tidal Refining Co. of Tulsa; F. M. Floyd, Oriental Refining Co. of Dallas; Walter M. Miller, Marland Refining Co., Ponca City; K. J. Smith, Skelly Oil Co., El Dorado, Kans.; A. M. Schrepfer, Vickers Petroleum Co., Potwin, Kans.; P. E. Slater and E. J. Slater, Champlin Refining Co., Enid; Charles C. Durkee, White Eagle Oil & Refining Co., of Augusta, Kans.; C. A. Davis, Peerless Oil & Refining Co., Chanute, Kans.; A. Henriksen, Marland Refining Co.; Dr. C. K. Francis, Skelly Oil Co., and The Oil and Gas Journal; E. L. Kitteridge, Fairmount Refining Co., Enid; C. E. Isaacs, H. G. Osborne and Wayne P. Rice, Marland Refining Co.; R. R. Mills, Empire Refineries, Inc., W. F. Sims, Panhandle Refining Co., Wichita Falls, Tex.; Frank Hovell, Grayburg Oil Co., San Antonio, Tex.; D. A. Dean, Oil State Refining Co., Enid.

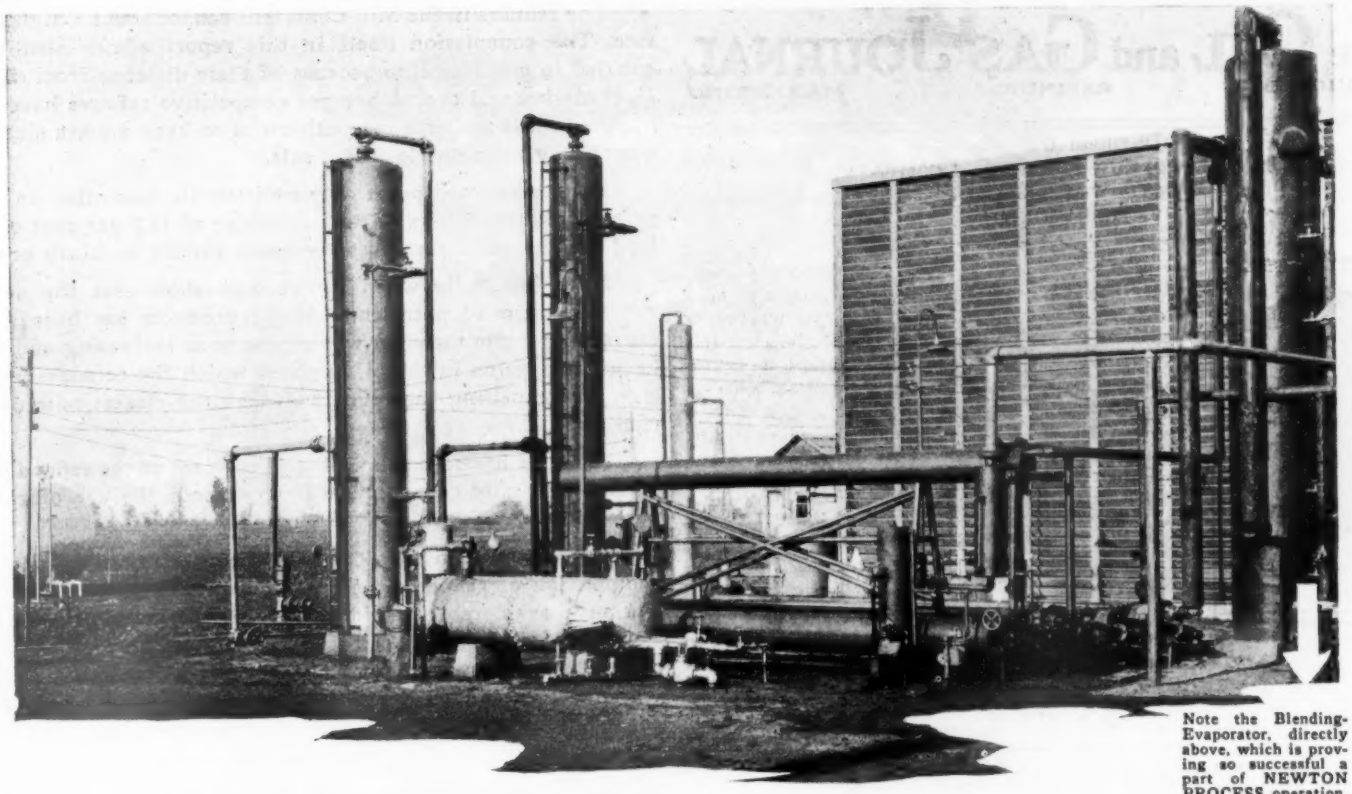
MARLAND REFINERY

An article describing the Ponca City, Okla., refinery of the Marland Refining Co. will be found on page 30 of this issue.

The local plant of the Empire is the largest of three located in Oklahoma and one located at Gainesville, Tex., operated under the name of the Producers Refining Co. The plant has a capacity of 7,500 bbls. daily securing practically all of the refined products obtainable from the crude, the bulk of which comes from the Kansas fields.

The topping of the crude is accomplished by two pipe stills. These stills are equipped with a special type of pan and bubble cap tower of Empire design. The visitors were shown the three units

(Continued on Page 121)



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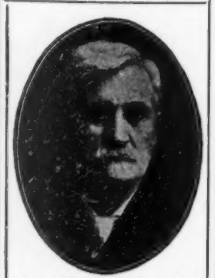

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FACTS FOR INVESTIGATORS

The Interstate Commerce Commission's report on the Mid-Continent oil rate case is a curious production.

It reasons one way and decides another.

It starts out by saying that "the territory of origin has a refining capacity of 41.75 per cent of that of the entire country, while it consumes only about 10.5 per cent of the total. On the other hand, the destination territory consumes 22.5 per cent and has a refinery capacity of but 4.5 per cent of the total. The importance of western trunk line territory as a market for these southwestern refiners is thus apparent, and the competition among them for this business is keen, as is partly evidenced by the wide interest displayed in these proceedings."

The commission's report then continues:

"It is said that the margin of profit is narrow, and that a difference in price of as little as a sixteenth of a cent a gallon may be sufficient to divert a sale.

"Another element which has an influence upon the level of the rates which the rail carriers may maintain from this territory is that of pipeline competition. All important crude oil sources in the Southwest are served by pipelines which extend to Kansas City, St. Louis and Chicago. These pipelines serve refineries at or in the vicinity of the points named, and the carriers must take into account the competition of these refineries located near the market which draw their crude oil in at less than the cost of rail transportation and maintain rates which will enable the refiners located in the producing area to ship by rail and meet that competition."

As a presentation of the keenly competitive conditions under which the Mid-Continent refiners must do business this is admirably stated and undeniably true. It might be assumed that a rate-fixing commission having so clear an understanding of the position of the Mid-Continent refiners would take care to see that no added burden was imposed upon them by freight rates.

Since it is officially recognized that as little as a sixteenth of a cent a gallon may divert a sale the vital importance of scrupulous adjustment of the freight rate must be acknowledged.

The refiners in the Mid-Continent cannot stand a higher freight rate. The commission itself in this report admits that they are entitled to consideration because of their distance from their principal market and the advantages competitive refiners have in those markets while at home competition is so keen a mere sixteenth of a cent may mean the loss of a sale.

From a railroad point of view it would seem that an industry whose products amounted to an average of 11.3 per cent of all carload freight on 19 southwestern roads should be worth preserving.

More especially when the records show that the volume of rail movement of petroleum refined products has been gradually decreasing while those by water have been increasing and the very keen competition in the oil business which the commission emphasizes is compelling the refiners to take the closest note of freight charges.

In fact it has been found that 44 per cent of the refined products go into domestic consumption now without the use of rail transportation.

The commission says the carriers must take into account the competition of refineries near the market. If they refuse to do so and any considerable portion of the refining industry of the Mid-Continent is forced, because of the prohibitive handicap of increased freight rates, to remove nearer the market it will mean that a still larger percentage of the refined products will go into domestic consumption without the use of rail transportation.

That is a possibility the railroads cannot afford to risk by failing to recognize there is a limit in freight rates which will prevent an increase of traffic and probably will result in a decrease of freight movement.

For every gallon of gasoline manufactured in the Mid-Continent and consumed in that district four gallons are manufactured in the Mid-Continent and shipped outside in competition with all the world.

The Mid-Continent refining industry cannot survive under freight rates that will not permit it to compete for the sale of four-fifths of its products.

Other industries have met freight handicaps by relocation—to the permanent loss of the railroads. The ease with which crude oil is carried by pipeline to refineries in the marketing centers is a standing invitation to escape excessive rail rates.

The railroads should think of that before driving away their customers. In fact, with a broader vision, the railroads should be doing everything in their power, as the Great Northern is doing for Montana oil men, to assist the industry which gives them business.

The Interstate Commerce Commission report leaves no doubt about the importance of this traffic. It says in its conclusions:

"Western trunkline territory is to a large extent dependent upon oil produced in the Southwest, and in turn the refineries in the latter territory are in keen competition for this business. The interests of all concerned require that rates be so adjusted that the producing interests throughout this origin territory may with reasonable limits have access to this outlet.

"The business is highly competitive and the comparatively narrow margin of profit limits the amount of rate disadvantage which may be absorbed and still permit distribution at a profit.

"There are features of the competitive situation, both from the commercial and the transportation standpoints, which are peculiar to the petroleum traffic."

That is the delicate situation into which, nevertheless, the commission has injected a decision wholly at variance with its reasoning.

At the same time, it may be suggested that the official findings of this governmental commission regarding the highly competitive conditions and narrow margin of profit in the refining industry should be called to the attention of that other governmental body, the Federal Trade Commission, when it undertakes that investigation of the price of gasoline recently ordered by the Senate.

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XUM

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

The Question and Answer Department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation.

Those connected with the marketing departments and others interested in the utilization of petroleum products are also invited to take advantage of the new service.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

THEORIES ABOUT CRACKING

What are the various theories as to the actual occurrence in cracking and what basis of proof for the theories? Which of the theories is most commonly accepted? Does the hydrogen and carbon completely separate and reunite in different compounds, or does a little of each split off leaving a little smaller and lighter molecule, or do the heavy compounds split into two or more pieces making lighter fractions? During cracking in a reaction chamber at pressures insufficient to maintain a liquid state of the newly formed compounds is there much loss of temperature due to expansion.—E. G. S.

It has been demonstrated that the quantity of gas may be decreased and the grade of liquid products, lubricating oil for example, improved by distilling under vacuum. In other words distillation of an oil will proceed without decomposition when the pressure is reduced enough for vaporization to take place at a low temperature. Decomposition can be accomplished at elevated temperatures without the aid of pressure but mechanical difficulties prevent satisfactory recoveries and the period during which the oil must be held in the heated zone is so prolonged that the operation becomes too expensive. These facts support the theory of the mechanism of cracking. The required conditions to produce cracking involve high temperatures and pressures because the oil can be subjected to the necessary cracking temperature without distillation when under high pressure. The boiling point of a liquid is in direct relation to the pressure.

Substances containing over 30 carbon atoms and over 60 hydrogen atoms are known to exist in petroleum and from our knowledge of the behavior of organic substances, we know that a long chain compound cannot be divided into uniform and distinct units, like a flock of ducks (sometimes), but that under proper conditions separation is made into units, molecules, which are not uniform in size and properties.

Enough work has not been done to establish with certainty the exact transformations which take place. The different petroleum fractions are not definite substances comparable with a pure chemical compound. Such fractions as kerosene and gas oil, for example, vary in properties according to the crude from which they are derived and to the method of manufacture, so that investigations must be continued over a long period and with many kinds of products in order to arrive at a conclusion. It is known with certainty that permanent gases are formed and that bodies of lower molecular weight are produced as may be illustrated by the following:

$$C_{20}H_{42} \rightarrow C_{10}H_{20} + C_{10}H_{22}$$

$$\downarrow \qquad \downarrow$$

$$(C_{10}H_{20}) \times C_5H_{10} + C_5H_{12}$$

$$\downarrow \qquad \downarrow$$

$$(C_5H_{10}) \times CH_4 + C_4H_4 \text{ etc.}$$

Then we may have from kerosene something like this

$$3\ C_{16}H_{34} \rightarrow 3\ C_8H_{18} + C_8H_{16} +$$

Hexadecane — Octane — Octylene

$$C_5H_{10} + 4\ C + 4\ CH_4$$

Naphthene — Carbon — Methane

The presence of hydrogen in the gas from cracking stills is not explained in these illustrations; but, as previously indicated, various substances are produced and the presence of unsaturated compounds does account for some free hydrogen.

Aromatic compounds are known to exist in petroleum and benzol together with various derivatives have been recognized in the cracked products. Some of these may be synthetic compounds and others may be decomposition products.

We have no data covering the last question.

RECLAMATION OF LUBRICATING OIL

I would appreciate any information, with list of reliable publications, concerning the reclamation of lubricating oil after being used in the crankcase?—W. J.

See answer to F. W. P. in May 20 issue. You will find reliable information on this subject in Bureau of Standards Technological Paper No. 223, Reclamation of Used Petroleum Lubricating Oil by Herschel and Anderson.

An extended bibliography is being prepared and will be printed in an early issue.

INTERPRETATION DOCTOR TEST

If when making the doctor test of a gasoline there is no dark precipitate produced but the gasoline is darkened should the product be considered sweet or sour?—A. M. H.

A perfectly sweet gasoline should not develop any precipitate nor color after the addition of the plumbite solution or upon the addition of the sulphur.

The United States Government Specification, Technical Paper 323A gives the following on this subject:

If the sample is discolored, or if the yellow color of the sulphur film is noticeably marked, the test shall be reported as positive and the sample condemned as sour. If the sample remains unchanged in color, and if the sulphur film is bright yellow or only slightly discolored with gray or flecked with black, the test shall be reported negative and the sample considered sweet.

CARBON BISULPHIDE

How is carbon bisulphide formed in petroleum products and what are its principal characteristics?—D. B. E.

Carbon bisulphide may be made by passing the vapors of sulphur over hot charcoal. In this manner sulphur and carbon, from the charcoal, combine to form carbon bisulphide, which is a liquid. It appears that when reducing a crude containing sulphur that part of the oil is reduced to carbon and the conditions are favorable for the hot carbon to combine with some of the sulphur so that traces of carbon bisulphide may be found in some petroleum products. It may find its way into a motor fuel made from a blend of gasoline and benzol, the carbon bisulphide being carried in the benzol.

Its properties include its weight, heavier than water, specific gravity 1.2922. It boils at a very low temperature, about 115 degrees Fahrenheit, and it gives off vapors which easily ignite, will explode with proper proportions of air and has a disagreeable odor. The liquid and the vapors are poisonous.

PUMP CONDENSERS

What is the action of a condenser on a pump?—T. L.

The condenser on a pump is a cooling chamber used for converting into water the steam which has completed its work through full expansion. There are two kinds of condensers: jet condensers and surface condensers.

In the jet condenser there is direct contact of the steam and the cooling water. The contact is indirect in surface condensers where the cooling water is used so as to present a cool surface to the steam; such as passing the water through pipes and directing the steam over them.

The jet form is common for inland plants while the surface condenser is used in marine work or where large quantities of cold water are available.

PRESSURE AND TEMPERATURE FOR BURNING FUEL OIL

What is considered the best pressure and temperature to use on the burner when burning fuel oil?—B. K. M.

This depends on the kind of burner, type and size of the furnace and character of the oil. When maximum furnace temperatures are desired the pressures and temperatures at the burner tip should be high, but the oil pressure required will be influenced by the quantity and temperature of the steam. While not so stated in the question, it is assumed that steam is being used to atomize the oil.

The higher the temperature which it is possible to carry the oil, the better; however, care should be taken to keep the oil temperature well below its flash point, because of the danger of fire should there be a leak of break in the line. The oil is commonly supplied at pressures which vary with local condition from a few pounds to about 100 pounds. The oil is delivered at the highest temperature that may be cheap and convenient. Waste heat in some form should be used for heating the oil.

PUMP HORSEPOWER

What is meant by the plan method for calculating the horsepower of a pump?—T. L.

This is a reference to a common formula which is used for determining horsepower. The name is derived from the fact that the components are represented by letters taken from the first letter of the name and these are used in the order so as to spell plan.

One form of the formula is

$$\text{H. P.} = \frac{\text{PLAN}}{33{,}000}$$

P (ounds) is the mean effective pressure in pounds to the square inch.

L (ength) is the length of the stroke in feet.

A (rea) is the area of the piston in square inches.

N (umber) is the number of strokes per minute.

The 33,000 is the constant derived by John Watt because he observed that a horse could raise a load of 550 pounds at the rate of 60 feet a minute, or to do 33,000 foot pounds of work a minute. He adopted this unit for measuring the power of his engine. Many years ago the American Society of Mechanical Engineers adopted an evaporation of 34.5 pounds of water per hour as the measure of one horsepower.

LUBRICATING VALUE

Will you kindly explain what is meant by the term lubricating value as used when comparing two lubricating oils and the statement is made that one has a higher lubricating value than the other?—L. M. M.

A perfectly true answer to this would be that we do not know, for there is no one test that may be used to determine such a value. Emulsion and viscosity indicate quality and flowing properties but have nothing about them to indicate how a given oil will behave in service with respect to stability. Many characteristics of an oil must be known in addition to the conditions under which it is to be used, for one to judge of its worth in practice. Oils differ in the degree to which viscosity decreases with elevation of temperature, so advantage may be gained if viscosities at several temperatures are known. The presence of water in one oil and its absence in another may be used as a basis for comparison. Flash and fire points together with the pour test are additional factors. The chemical tests which include sulphur and acidity are of value. So it appears that chemical composition, physical properties and the actual stability under conditions of service must all be considered when determining value as a lubricant.

REMOVAL OF HYDROGEN SULPHIDE

What substances are adapted to the removal of hydrogen sulphide from natural gas and the gas from petroleum?—H. U.

Iron and its compounds, especially the oxide and hydrate; water, caustic soda, lime, hydrated lime, lime water and sodium carbonate are used. When temperature conditions will permit many of these may be used in a wash. They are also used as films on cheap material such as wood shavings, broken tile, wire screen, iron turnings, etc.

DEHYDRATING CRUDE OIL

What are the best methods for breaking down cut oil and what causes this condition?—W. C. E.

It has been found that when petroleum is atomized in the presence of small quantities of water containing mineral matter that an emulsion will be formed. If mineral salts especially those of lime and magnesium are added to a fully refined lubricating oil and then shaken with a small quantity of water an emulsification will result. Such experiments as these are believed to explain what happens in some oil wells.

When the water, which is found in the cut oil, is removed the salts go along with it and the oil will become clear. In some cases it has been found possible to effect the separation by settling either alone or with the addition of fresh water. More serious conditions require special treatment either by the addition of alkalies and soaps (patented process) heating, centrifugal force, or electrical methods.

DETECTION OF LEAD IN GASOLINE

Is it possible to detect any very small quantity of lead which may be present in gasoline on account of its solubility in the form of the doctor solution?—G. I. C.

So far as we are informed there are no reports of lead being found in ordinary gasoline. Under the conditions of treating it is very doubtful that there could be any compounds of lead formed which would remain in solution in the gasoline.

The introduction of special antiknock substances such as tetraethyl lead, would certainly give enough lead to be found by the standard methods of chemical analysis. These are too long to describe here. Lead may be determined by electrolysis, volumetrically and gravitmetrically. The qualitive tests include conversion to the oxide, sulphate, chloride, iodide and chromate. Probably the most sensitive test is that in which the ultra violet lines of lead are observed.

Mexia Well Feature of the Week

Panhandle Completes Several Good Wells. Upton-Crane Counties Area Has Another of 100 Barrels An Hour. Spindletop Deep Sand Up

The opening of another Mexia Fault pool by the completion of the Transcontinental Co.'s No. 1 Rossen, about 5 miles west of Mexia, producing 123 bbls. an hour from the Woodbine sand, was the sensation of the week. This discovery starts with larger production than the well which opened the Wortham Field. The well is 1,500 feet from the Prairie Pipe Line Co.'s 8 inch line from Mexia to Jacksboro. The oil is 39.9 degrees in gravity corrected. There is no water.

Several good wells, including one of the largest natural flowing producers, 6,400 bbls. were reported from the Texas Panhandle, production being estimated at 54,736 bbls. In the Upton-Crane Counties area another well, producing over 100 bbls. an hour, increases interest there.

Rocky Mountain production was cut almost 18 000 bbls. by a storm that shut down the Salt Creek Field for a time. Spindletop deep sand ran production up to 28,000 bbls.

Kansas

The completion of Yourker and others' No. 2 Walstein in Rice County for 820 bbls. by flow and swab was the chief development in Kansas. Drilled 22 feet deeper it increased to 1,600 bb's. All available leases in the new pool north of Winfield have been purchased and drilling has been started.

Oklahoma

The Burbank Field was extended a half mile south by the Phillips Petroleum Co.'s No. 4 which made 525 bbls. after being shot. This company had two other completions in that sector, one for 540 bbls. and one dry.

A new well in the North Braman Pool in Kay County and the appearance of water in the new extension of the Tonkawa deep sand operation, were other features of the Oklahoma fields. In the Deep Rock Pool of Payne County the Deep Rock Oil Co.'s No. 4 Barth made 900 bbls. from the Wilcox. What may prove another producing formation was found in the Reiter-Foster Co.'s wildcat in Payne County.

Pennsylvania-West Virginia

Southeastern Ohio completed some good wells: Empire Gas & Fuel Co. had one of 175 bbls. in Holmes County and F. M. Rugg & Co. and Pure Oil Co. each 50-bbl. wells in Licking County. Vinton County is to get some attention. South Penn Oil Co. had a 65-bbl. produced in Ritchie County, West Virginia and Meadow Run Oil Co. 60 bbls.

Central West

Some fair producers were completed in the Central West fields, a 60-bbl. well in Allen County, Ohio, 52 bbls. in Wood County and 50 bbls. in Hardin County. Indiana had 50 bbls. each in Knox and Logan Counties.

Kentucky-Tennessee

A deep test is being planned in Christian County, southwestern Kentucky, and another near Scottville, Allen County. The Ohio Oil Co. has a pure wildcat 10 miles from production in the Owensboro Field in Daviess County where pay was found in the Jett sand.

Michigan

The Bliss Petroleum Co.'s test, 2 miles north of the discovery well in the Saginaw Field, struck water in the Berea sand and was abandoned. The Saginaw Prospecting Co., completed a well 700 feet north of the discovery well and is estimated good for 30 bbls.

New Mexico

The pipeline from the Rattlesnake and Table Mesa Fields is now in operation. It is reported that arrangements have been made to ship a trainload of 9,000 bbls. a day from Gallup. It is reported from Artesia that western Texas and eastern New Mexico will get a wildcat play during the coming year, including the triangle having Amarillo as its northern point, Big Lake at the southern and Artesia at the western.

North Texas

The Upton-Crane Counties area continued to be the feature of north Texas, when Marland Co.'s No. 6 Sanger Brothers, 4 miles southeast of the Dixie Co.'s No. 2 Hughes, made 100 bbls. an hour, producing 1,385 bbls. the first 13 hours. The Dixie well was making 2,400 bbls. daily July 11. Several other wells are nearing completion.

Texas Panhandle

Several good wells, including one of the largest natural flowing producers, were reported from the Panhandle. Phillips Petroleum Co. and Jerry Oil Co.'s No. 1 Whittenburg flowed 6,400 bbls. and No. 2 is estimated 250 bbls. an hour. Dixon Creek Co. had a well making 185 bbls. an hour. There is still great difference of opinion about the future of the field, some being of the belief it will not go much over 75,000 bbls daily. The week's record was 54,376 bbls.

Rocky Mountain Area

An electrical storm in the Salt Creek Field, Wyoming, caused a temporary shut down, which cut production nearly 18,000 bbls. daily. Union Oil of California completed a 700-bbl. well in Fort Collins, Colo. Three wildcats are reported ready to drill north and west of the Sunburst Field in Montana in the hope of extending production.

Louisiana-Arkansas

Wildcatting in north Louisiana and Arkansas continues to be disappointing in results. Smackover extension had one 250-bbl. well. Two wells were finished near Tullos good for 250 bbls. each. The deep test of The Texas Company in Caddo Parish showed salt water at 3,675 feet. Lisbon had a dull week with only small producers. Production from the two states dropped almost 4,000 bbls.

Mexico

Eight producers and eight dry holes summarize the completions in Mexican Fields the best being Transcontinental's well in the old Panuco district, good for 10,000 bbls. and Hunsteen Co.'s No. 79 Cerro Azul good for 5,000 bbls. Rains are slowing work in the fields.

California

M. L. Boles' No. 1 Cerritos in the deep zone of Long Beach extension which staged a gas blowout ten days ago is doing better than 2,250 bbls. It is on the upper shoulder of the terrace. The Repetto Hills Oil Co.'s No. 5, deepened, came in for 1,180 bbls. The Wilshire Co.'s drilling project in the southwest extension of Huntington Beach is being closely watched as likely to throw light on that area. At Ventura Avenue the Shell Co.'s No. 21 Gosnell showed an initial of 2,390 bbls. Several others should be on production in a short time. The area adjacent to the recently opened Poso Creek Field near Bakersfield in Kern County is getting much attention. Numerous shallow tests are likely to follow the present leasing activity there.

Canadian Fields

Seven tests in the Turner Valley Field are below the 3,000-foot level. The remarkable activity in the northwestern fields continues to increase.

Gulf Coast

The old Spindletop Pool took the lead with a daily average gross production of 28,000 bbls., all except 1,200 bbls. coming from the new deep sand. There was also an increase in the number of drilling wells, derricks and locations. The Sun Oil Co.'s No. 1 McLean which came in flowing 4,500 bbls. was holding up and Hines Brothers' No. 1 Quinn came in flowing 3,500 bbls. The Young-Lee Co.'s well which increased from 6,000 bbls. to 9,000 bbls. is showing 6 per cent water. There are now 12 producers in the deep sand.

Southwest Texas

The Tide Water Associated-Carson's No. 2-A Webster in the Carolina-Texas gas field which gauged 40 bbls. an hour and increased to 60 bbls. has dropped to 200 bbls. a day and continues to decline with the increase of gas. It is flowing through a 3/8-inch choker and no estimate can be made of what it may make when opened up. Some of the Cole gas field wells going to gas after making oil came back and made more oil than before. Despite the drop in production it is the most talked of well in southwest Texas and the chances for a new field are thought so good a drilling campaign is assured. Five completions in the Bruni extension of the Aviator Field swabbed a total of 2,310 bbls.

Late News From the Fields

OKLAHOMA

In the Deep Rock Pool of Payne County, the Deep Rock Oil Co.'s No. 4 Barth, NW cor. NE. Section 26-18-3, made 900 bbls. from the Wilcox sand at 4,281 4,300 feet.

The west offset to this well is the M. T. C. Oil Co.'s No. 1 Waltman, NE cor. NW, Section 26-18-3, which had been producing 350 bbls. and which was drilled 2 feet deeper to 4,245 feet and responded by increasing in production to 750 bbls.

In Creek County, Frank Billingslea and others' No. 1 Wright, SE cor SE, Section 17-17-8, was drilled 3 feet deeper to a total depth of 3,533 feet and made 55 bbls. This well may be drilled to a greater depth.

In the old Bald Hill district of Okmulgee County, The Texas Company's No. 4 Bruner, SW cor. SE, Section 16-15-14, had the Wilcox sand at 2,316 feet. Some gas and the first oil were found at 2,337 feet, and the bottom of the hole is at 2,247 feet in sand. The well is flowing 20 bbls. an hour.

LOUISIANA-ARKANSAS

SHREVEPORT, La., July 13.—Woodley and Collins' wildcat, No. 1 L. and A., Section 14-23-12, Bossier Parish, blew in from the Woodbine sand at 3,102-10 feet making 8,000,000 to 10,000,000 feet of gas. It was bailed down 400 feet when it blew in. The well blew for four hours and started making sand and showing salt water and then bridged over. Another wildcat to cause excitement was the Ohio Oil Co.'s No. 1 Edenborn, Section 4-12-1, Winn Parish, near Cypress. Monday night the crew shut down in shell rock at 1,480 feet. While away to supper, the well blew in throwing mud half way to the crown block. A farmer witnessed the blowout and called the crew who returned and started up the pumps. Formations will be cored Wednesday at the Ohio's test.

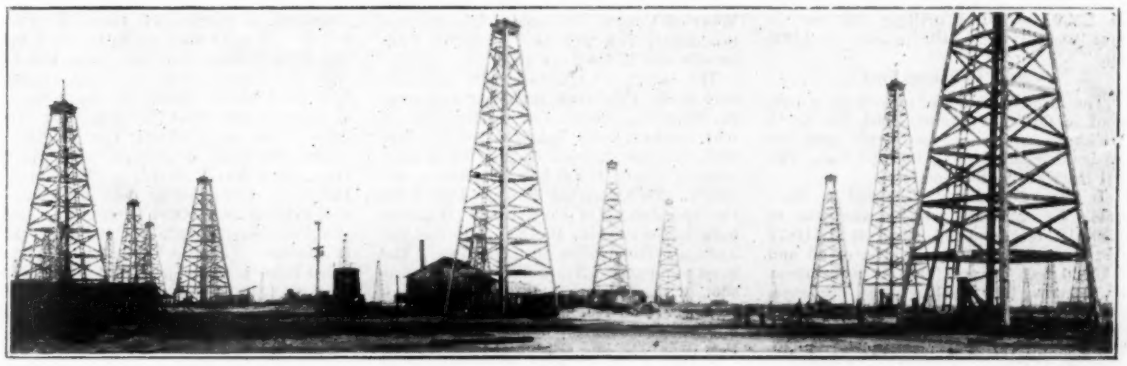
SOUTHWEST TEXAS

SAN ANTONIO, Tex., July 13.—Five wells completed in the Bruni tracts extension of the Aviator Field last week came in swabbing at the rate of a total of 2,310 bbls. per day. Gibson Oil Corp.'s No. 7 swabbed at the rate of 860 bbls. and its No. 1 at the rate of 350 bbls., both on the north 60 acres out of the west half of Block 13. On the northeast quarter of Block 13 Ball-Kennedy's No. 3 swabbed 350 bbls. and on the southeast quarter of 13 Murchison & Fain's No. 2 swabbed 400 bbls. and No. 3 swabbed 3,350 bbls.

O. W. Killam, who brought in the discovery well of the Mirando Field, has paid $100,000 cash for the lease on 11,0000 acres of land a little northeast of the Carolina-Texas gas field where the Tide Water Associated and Usher Carson have brought in No. 2 "A" Webster, the discovery oil well. Another $100,000 is to be paid out of oil or if no oil is produced on it inside of a year then in cash.

Usher Carson has been offered $200,000 in cash for his half interest in the 60 acres the Associated-Carson discovery oil well is on. Mr. Carson, representing

(Continued on Page 136)



View of the old Spindletop Pool, showing new development to deeper zone.

New Upton-Crane Well 100 Bbls. Hour

Marland Co.'s No. 6 Sanger Bros. Produces 1,385 Bbls. First 13 Hours, 4 Miles Southeast Dixie's No. 2 Hughes

By C. D. Lockwood
Staff Correspondent, North Central Texas

FORT WORTH, Tex., July 12.—The Upton-Crane County district scored again this week and would have provided the sensation of the Mid-Continent had it not been for the new fault line strike of the Transcontinental Oil Co. at Mexia. Even with the colorful fault zone in competition, this area stands out as one of the most important in Texas. The new well to attract attention is the Marland Oil Co.'s No. 6 Sanger Brothers, a location west of the Dixie Oil Co.'s No. 3 Burleson and about 4 miles southeast of the Dixie Oil Co.'s No. 2 Hughes, which was the sensation of last week. The Marland Oil Co.'s No. 6 Sanger topped the pay at 2,194 feet and at 2,228 feet started off at better than 100 bbls. an hour, gauging 1,385 bbls. in the first 13 hours. This oil tests 32 degrees gravity. There is a wide stretch of open country now between the two big wells in this region and a fat bonus probably awaits the man who can dope out what is going to happen in between or which way the trend is going to run. In each one, a big well of gusher proportions offsets a comparatively small producer.

The Dixie's No. 2 Hughes has proved itself a real oil well during the past week. During its first 48 hours it tanked 5,920 bbls. It then made 2,110 bbls. for the 24-hour period ending at 7 a. m. July 7; 2,205 bbls. July 8; 2,150 bbls. on the ninth; 2,054 bbls. on the tenth, and 2,400 bbls. July 11. The Independent Oil & Gas Co.'s No. 1 Emma Wooley, a couple of locations west of this big well, on the other side of the Dixie's No. 1 Hughes, was drilling Monday at 2,055 feet in hard lime with a small showing of oil. The Marland Oil Co.'s No. 7 Sanger, northwest of the big No. 6, was also nearing the pay, drilling at 2,260 feet with 2,000 feet of oil in the hole.

Another well in this area that is being watched carefully is The Texas Company's No. 1-F Union Land Co., in Section 21, Block 35, H. & T. C. Survey, Crane County, about 2 miles south and a little west of the Dixie Oil Co.'s No. 2 Hughes. It had 1,000 feet of oil in the hole at 3,014-16 feet but also had 2 bbls. of sulphur water coming from 2,729 feet. It was shut down to set casing.

The Plateau Oil Co.'s No. 1 Union Land Co., in Section 34, Block 1, M. K. & T. Survey, pulled in the rig at 3,085 feet and was plugging to abandon.

In Ector County, the Eastland Oil Co.'s No. 1 Buchanan (formerly Skinner, Turman & Maxwell) topped the salt at 1,330 feet.

In Winkler County, the Westbrook Oil Co.'s No. 1 Hendricks topped the salt at 1,930 feet after drilling 110 feet of blue lime. It was still in salt at 1,960 feet.

New Callahan Pool

The Moutray Oil Co. opened up a new pool in Callahan County with its No. 1 Wickman, which was estimated good for 10 bbls. from sand at 695-708 feet. The Oil tests 32 degrees gravity.

In Haskell County, Bridwell & Mayfield's No. 1 Buskley had a gas sand at 1,505-10 feet and oil sand at 1,510-21 feet estimated good for 5 bbls. of oil and 500,000 feet of gas. The oil tests about 38 degrees. The well will be deepened.

In Archer County, D. Monniger and others' No. 1 T. B. Wilson had lime at 1,636½-39 feet and oil sand at 1,639-40½ feet. The hole filled up 1,300 feet through mud and water and looks like the opener of something good. The well was shut down for storage. Murchison & Fain's No. 1-B Logan had saturated lime at 1,121-31 feet and then a foot of shale. There was 200 feet of oil in the hole and the casing will be re-set before the well is shot. The Pandem Oil Corp.'s No. 6 Young swabbed 250 bbls. at 1,434-46 feet.

In Brown County, the Humble Oil & Refining Co.'s No. 5-B Kilgore made 400 bbls. from sand at 1,134-51 feet. McKenna's No. 1 Foster was good for 600 bbls. at 1,154-61 feet. These were the only two completions of the week in Brown County above the 100-bbl. class.

In Foard County, the Humble and Navarro Oil Co.'s No. 1 Easley, Section 34, S. P. Survey, had a showing of some oil at 3,812-21 feet and was setting 4½-inch casing to test it.

In Sutton County, the Chesapeake Oil Co.'s No. 1 Allison resumed drilling again after considerable shutdown time due to fishing casing and was going ahead at 3,210 feet.

In Crockett County, the Marland Oil Co.'s No. 1 Todd, Section 25, Block WX, G. C. & S. F. Survey, was preparing to plug at 3,010 feet. The Crockett Drilling Syndicate's No. 2 J. M. Shannon, Section 9, Block 10, same survey, was flowing 20 bbls. of sulphur water at 2,902-3,005 feet and was waiting on orders to plug.

New Locations—Brown County

H. P. Evans' No. 1, C Lot, 9 Block, E. Brownwood Heights, second addition to town of Brownwood; Gwinnup and others' No. 1 H. J. Runge, 150 feet south and west NE of Runge 150 acres, Sec-29, H. T. and B. Survey; T. H. Gray's No. 1 Hamp Byles, 150 feet south and 175 feet east NE cor. of Byles 260 acres, T. and N. O. Survey No. 43; J. K. Hughes Development Co.'s No. 14 J. T. Arledge, 2,550 feet east and 150 feet north SW cor. Arledge 1,925 acres, N. B. Mitchell Survey.

The Humble Oil & Refining Co.'s No. 6-B E. P. and W. H. Kilgore, 562 feet west and 200 feet south NE cor. Section 2 J. Delgado, machine; No. 7-B E. P. and W. H. Kilgore, 970 feet south, 200 feet west NE cor. Section 2, location; No. 8-B E. P. and W. H. Kilgore, 200 feet north and east SW cor. E 20 of Kilgore 50 acres Thomas Benson Survey, location (offset No. 1-C); No. 9-B E. P. and W. H. Kilgore, 1,335 feet west NE cor. Section 2 J. Delgado (385 feet south of No. 7); No. 3-C E. P. and W. H. Kilgore, 474 feet west and 150 feet south NE cor. W 30 Kilgore 50 acres Thomas Benson Survey, machine; No. 4-C, 798 feet west and 150 feet NE cor. W 30 acres Kilgore 50 acres, machine; No. 5-C 1, 121 feet west and 150 feet south NE cor. W 30 Kilgore 50 acres Thomas Benson Survey, location; No. 2 J. I. Foster, 450 feet north and 150 feet east SW cor. E 44 acres Foster tract, Thomas Benson Survey, machine; No. 5 Hodnett, 200 feet north and east SW cor. Hodnett 400 acres, heirs of J. M. Harris Survey.

The Texas Company's (was Ingleright and others) No. 6 L. V. Edington, 936 feet west and 150 feet north SE cor. 40-acre lease, R. G. Milliken Survey, (300 feet west of No. 5); Ingleright and others' No. 1 L. V. Edington, 150 feet south and west NE cor. 40-acre tract, R. G. Milliken Survey. Clark & Kimbell's No. 1 W. M. Armstrong, 150 feet south and east NW cor. S 115 acres Armstrong's 365-acre tract, Patrick Curlong Survey. Macwell & Thurman's No. 1 William Broom, 660 feet north and west SE cor. NW, Section 36, H. & T. C. Survey. J. E. McKenna's No. 2 J. I. Foster, 486 feet west and 150 feet north. Section W-40 E 88 of Foster tract, Thomas Benson Survey; No. 3 J. I. Foster, 622 feet west and 150 feet north SE cor. W 40 acres E 88 acres; No. 4 J. I. Foster, 450 feet north and 150 feet east SW cor. W 40 acres E 88 acres; No. 5, 450 feet north and 150 feet west SE cor., same 40 acres. The McLester Oil Co.'s No. 1-A W. M. Woodridge, 160 feet south and west NE cor. N half N half S half of Wooldridge 160 acres in E. W. Kinnebrew Survey. The Midwest Exploration Co.'s No. 8 M. J. Suttles, 1,318 feet west and 200 feet south most N NE cor. of 400 acres in Robert Mitchell Survey No. 140; No. 9 M. J. Suttles, 1,350 feet south and 150 feet west most N NE cor. their 400 acres. The Texas Company's No. 1 Roy Hickman, 1,119 feet west and 150 feet north SE cor. their 160 acres, Thomas Benson Survey: Williamson and others' No. 2 J. H. Keller, 1,350 feet west and 150 feet south NE cor. Keller 180 acres in R. Mitchell Survey No. 141; No. 3 J. H. Keller, 150 feet north and 750 feet west SE cor. N 80 acres of Keller 180 (offset J. K. Hughes No. 1 Keller). Oil Operations Trust No. 1 W. T. Wright, 150 feet south and west NE cor. E 60 acres Wright's 150 acres, Stephen Jones Survey; Valley Oil Co.'s No. 2 A. B. Teston, 450 feet east and 150 feet north SW cor. Teston's 50 acres, Patrick Curlong Survey; Gilman & McMurray's No. 10 A. B. Teston, 1,055 feet east and 150 feet south NW cor. Teston 136 acres, W. B. Smith Survey.

Gray County

Hauglin and others' No. 1 A. J. Dauer, 330 feet SE cor. Section 237, Block B-2, H. & G. N. Survey, (near Carson County line).

The Humble Oil & Refining Co.'s No. 3 Merten, 330 feet north and 1,650 feet west SE cor. NE, Section 87, Block 3, I. & G. N. Survey; No. 4 Merten, 330 feet north and east SW cor. NW, Section 87, Block 3, I. & G. N. Survey; Marland's No. 1 Benton, 330 feet east and 600 feet south NW cor. Section 63, Block 3, I. & G. N. Survey (south offset to Empire Gas & Fuel Co.'s Benton). Phillips Petroleum Co.'s No. 2 Merton, 990 feet east and 330 feet north SW cor. W half NE, Section 82, Block 3, I. & G. N.; Shamrock Petroleum's No. 3 Worley & Reynolds, 330 feet north and east SW cor. NW, Section 83, Block 3, I. & G. N.; Eagle Creek Oil Co.'s No. 1 Mrs. J. A. Hopkins, 330 feet south and east NW cor. Section 66, Block B-2, I. & G. N., rig.

Completions—Archer County

The Continental Oil Co.'s No. 8 J. F. Rogers in Section 2,407, T. E. & L. Survey, was a 30-bbl. well at 1,371-76 feet. Cook & Reeder's No. 1 A. M. Kunkel, Section 3, B. B. B. & C. Survey, A-51, swabbed 180 bbls. at 1,171-73½ feet. The Cosden-Consolidated Oil Co.'s No. 2 Frank Jehlik, Section 132, Club Ranch Subdivision, was dry and abandoned at 1,200 feet. It is located 1,150 feet south and 150 feet east of NW cor. of the section. Crown Central Petroleum Corp.'s No. 2 L. F. Wilson, 150 feet north and west of south 25 acres of east half of north 100 acres J. T. O'Reilly Survey No. 24, A-360, pumped 25 bbls. from oil sand at 893-902 feet. Golding & Cochran's No. 1 H. O. Prideaux pumped 11 bbls. from sandy lime, 596-605 feet. Head & Heydrick's No. 1 H. F. Harmel, Section 2-490, T. E. & L. Survey, was a failure and plugged at 1,607 feet. McCarty Oil Co.'s No. 1 Parrish Brothers in the SE cor. Lot 2, Geraldine Subdivision, J. T.

BIG NATURAL FLOWING PRODUCER COMPLETED IN TEXAS PANHANDLE

By C. D. Lockwood
Staff Correspondent, Texas Panhandle

Several good wells, including one of the largest natural flowing producers in the history of the field, were brought in during the past week in the Texas Panhandle and will doubtless cause still further increase next week in the steadily growing production. Estimates of the peak production in the Panhandle have undergone considerable revision again, however, and many competent observers can be found who once thought the field would reach 100,000 bbls. but who are now convinced that it will do well to reach 75,000 bbls. daily average for a week. The daily average output per well in Hutchinson County last week was 335 bbls.; in Carson County, 66 bbls.; in Gray County, 370 bbls., and in Wheeler County, 48 bbls. The average production per well in the entire Panhandle was 274 bbls. a day.

The results of shooting were considerably better this week than last and some excellent completions were brought in with comparatively light shots. The best well, however, needed no help from nitro since it flowed 6,400 bbls. Saturday naturally. This was the Phillips Petroleum Co. and Jerry Oil Co.'s No. 1 Whittenburg in Section 13, Block Y. It had the lime pay from 2,780 to 2,805 feet. The same companies' No. 2 Whittenburg was shot with 40 quarts late in the week from 2,773-93 feet and responded with a flow of 250 bbls. an hour. The Phillips Petroleum Co. and Gibson Oil Corp.'s No. 3 Whittenburg in Section 63, Block 46 near the Canadian River on the south side, was flowing 12 bbls. an hour while drilling at 2,770 feet in blue shale Sunday and was to be shot Tuesday.

The Dixon Creek Oil Co. was enjoying considerably more success than in several recent weeks when its No. 3 Smith in Section 11, Block Y, found rich pay at 2,960-64 feet for an estimated flow of 225 bbls. an hour late last week. Monday it was still estimated to be making 185 bbls. hourly. The same company's No. 15 Smith in Section 14, Block Y, was given a 360-quart shot and made 900 bbls. initially. It was shot from 2,900 to 2,978 feet. Total depth is 2,988 feet.

The largest shot of the week was placed in W. Scott Heywood's No. 1 Christian, in Section 31, Block Y, where 600 quarts were used at 2,945-3,104 feet. The hole bridged 600 feet from the top and was cleaning out at latest reports. S. D. and W. W. McIlroy's No. 1 Smith, in Section 14, Block Y, was shot with 240 quarts at 2,920-97 feet and produced 800 bbls. afterward. Phillips & Heywood's No. 1 Smith in Section 12, Block Y, was flowing 500 bbls. while still drilling at 2,900-40 feet. The Roxana Petroleum Corp.'s No. 2 Smith "B," in Section 11, Block Y, was flowing 1,200 bbls. with 20 per cent water after a shot of 150 quarts placed at 2,800-40 feet. This well had been plugged back to 2,858 feet from 2,869 feet. No. 3 Smith "B" C SW NE SW, same section, was shot with 110 quarts from 2,810-73

(Continued on Page 133)

How would you operate a refinery if located on a railroad that could only deliver gas oil?

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Owners of the Dubbs Process
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Tucker Survey, A-1,113, made 70 bbls. at 1,581-1,600 feet. Maer & Staniforth's No. 4 G. P. Meade estate, Section 40, "L. M." pasture, was good for 5 bbls. at 1,-445-48 feet. Magnolia Petroleum Co.'s No. 8 W. T. Coffield, in the A. P. Richardson Survey, A-356, was another 5-bbl. well at 1,403-06 feet. Pandem Oil Corp.'s No. 2 W. H. Thomas, Lot 5, North Subdivision, Nathan Thomas Survey, A-454, was dry and plugged at 1,494 feet. Phillips Petroleum Co.'s No. 1 Meade estate, Section 35, Meade Subdivision "L. M." pasture, made 15 bbls. at 1,434-39 feet; No. 2 was dry and abandoned at 1 502 feet. Shappell Oil Co. (No. 2) No. 5 L. F. Wilson "B", in Section 25, A. T. N. C. L. Survey, was a failure at 1,970 feet. Shasta Oil Co. and others' No. 3 G. P. Meade estate "A", in Section 39, "L. M." pasture, made 72 bbls. initially at 1,440-59 feet. Shaw and others' No. 7 L. F. Wilson "B", 150 feet north and 500 feet west SE cor. Lot 400, Geraldine Subdivision, Section 1, G. H. & H. Survey, A-160, produced 20 bbls. at 1,560 85 feet. Smith Oil Co.'s No. 14 S. M. Cowan estate "B", 450 feet south and 150 feet east NW cor. SE. Section 50, Jefferson County school lands, A-240, was dry and abandoned at 1,131 feet. Texhoma Oil & Refining Co.'s No. 5 L. J. Kunkel, 450 feet north and 150 feet east SW cor. their lease in Section 2, Thomas McCoy Survey, A-269, was good for 45 bbls. at 1,153-68 feet. Texhoma Oil & Refining Co.'s No. 1 W. J. Logan, in the Allison Arms Survey, A-5, was dry and abandoned at 1,505 feet.

Callahan County

The Canyon Oil & Gas Co.'s No. 4 D. H. Derrington, in the W. G. Anderson Survey, was good for 150 bbls. at 1,396-1,416 feet. Gibson Oil Corp.'s No. 1 Smith, Section 107, B. B. B. & C. Survey, was a failure and abandoned at 1,-209 feet. McCamey and others' No. 1 Strahan in the Steele Survey, was also a duster at 2,207 feet.

Clay County

The Howard Petroleum Co. and others' No. 1 M. K. Inman "A", was dry and plugged at 570 feet. J. J. Jenkins' No. 1 T. E. Teat, Section 26, Specht & McCutcheon Subdivision, was also a failure at 1,977 feet.

Cooke County

Elliott & Wallace's No. 1 Osborne was dry and abandoned at 1,595 feet.

Eastland County

The Prairie Oil & Gas Co.'s No. 1 Parsons, in the Parsons Pool south of Olden, made 3 bbls. of oil and 2 bbls. of water from sand at 1,565-72 feet.

Fannin County

J. W. Atkins' No. 1 Whitting was temporarily abandoned at 702 feet. It has been shut down at that depth for some time. Payne, Bond and others' No. 1 Owen, was dry and abandoned at 645 feet.

Irion County

Oklavania Oil Co.'s No. 1 Sawyer Cattle Co. was dry and abandoned at 2,706 feet. P. H. Williams' No. 1 Ash Brothers in Section 20, W. C. Survey, was also a dry hole at 3,535 feet.

Jack County

Buttram Petroleum Co.'s No. 3 Preston was good for 17 bbls. at 2,053-67 feet. Guthrie and others' No. 2 Mrs. M. D. Snedeker, in the J. Robbins Survey, A-490, made 5 bbls. at 789 94 feet. Meeks & Foster's No. 1 James Ellis and others in the J. W. Williams Survey, A-877, was dry and abandoned at 700 feet. Seaboard Oil Co.'s No. 1 Cullers swabbed 80 bbls. at 2,036-40 feet. Staley & Wynne's No. 1 Snedeker, Lot 5, in the J. Robbins Survey, was completed for 5 bbls. at 782-94 feet. Wallace & Nichols' No. 1 Plemons was plugged as a failure at 867 feet. Benton-Woods and others' No. 9 R. Hinds, in the John Chambliss Survey, A-123, was good for only 9 bbls. at 904-35 feet, total depth 938 feet. The F. H. E. Oil Co.'s No. 6 R. Hinds "A", in the J. J. Wall Survey, A-1,199, made 90 bbls. at 903-19 feet. Humble Oil & Refining Co.'s No. 8 R. Hinds, in the J. J. Wall Survey, made 70 bbls. at 936-43 feet, total depth 948 feet. The same company's No. 1 J. W. Maddox was finally completed as a 700-bbl. well at 888-98 feet. It has been shut in for some

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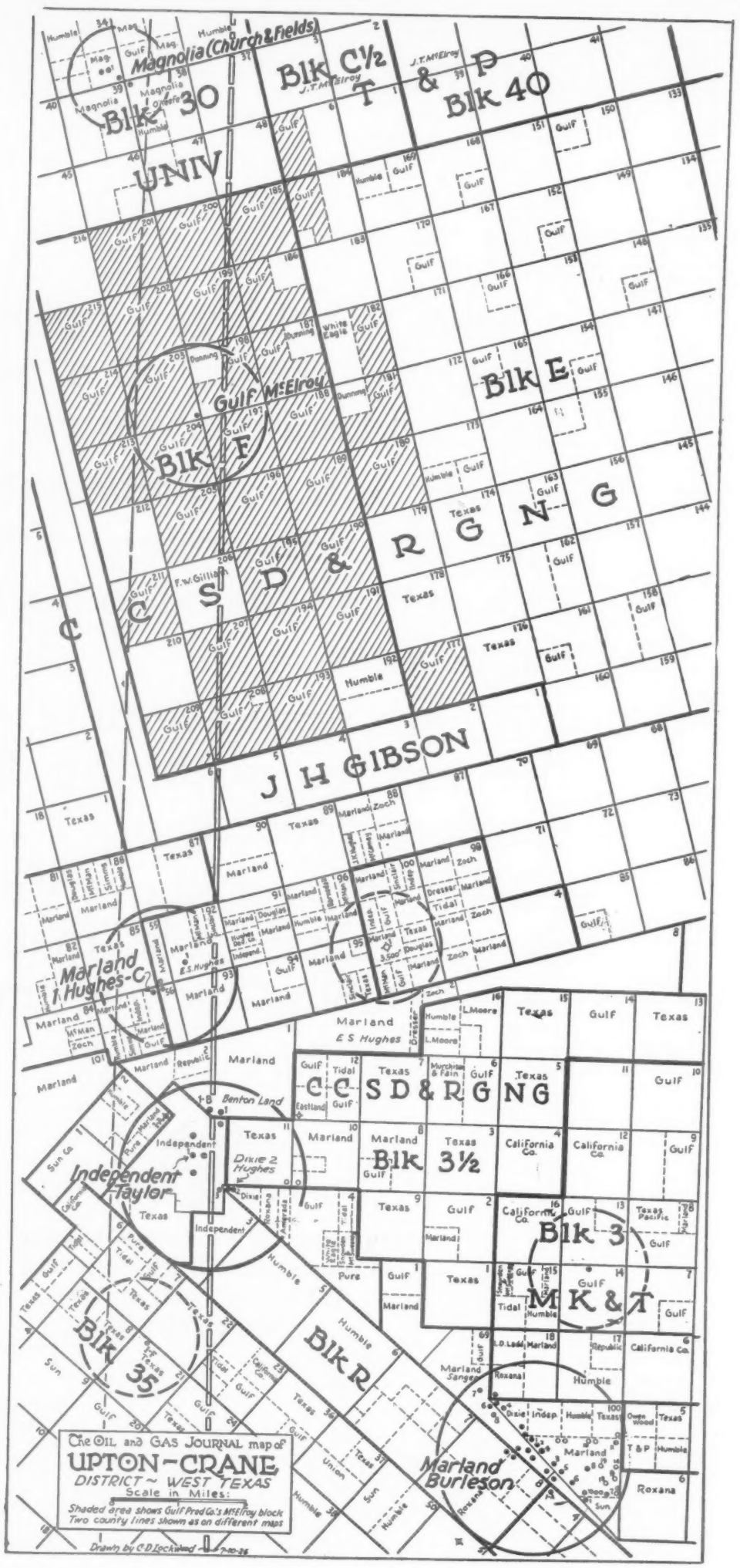

Spindletop Again Features Gulf Coast

Twenty-Five-Year-Old Field Averaged 28,000 Bbls. Daily Last Week. Other Deep Sand Wells Boost Production

By P. L. McGreal
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., July 12.—The old Spindletop Pool took the lead last week in the Gulf Coast division, with a daily average gross production of 28,000 bbls. for the week ending July 10. All except about 1,200 bbls. is coming from the new deep sand section. The week also witnessed an increase in the number of drilling wells and derricks up there, with additional locations made. Rigs are being shipped in from other pools and major companies have let contracts to outside drilling contractors in addition to using their own equipment and crews.

Deep sand wells in the Saratoga and Sour Lake Pools as well as Spindletop added to the gross production of the week, which shows an increase of 11,260 bbls. over last week. This increase in production offsets the decline in stocks of coastal crude, which have been decreasing for the past 60 days or more at the rate of 30,000 bbls. per day. Operators have been discussing what effect the increased production in the coastal region will have on credit balance quotations. The consensus of opinion lends to the belief that prices will not be reduced in the immediate future, since the pipelines are buying on a gravity basis, the lighter gravities being in good demand for motor fuel.

New Deep Sand Wells

The Sun Oil Co.'s No. 1 McLean at Spindletop came in Wednesday flowing 4,500 bbls., 23.5 gravity, at 2,875 feet and at the close of the week was holding up around the original figure. Hines Brothers' No. 1 Quinn on the west side came in at 2,775 feet flowing 3,500 bbls., 23.6 gravity, with a temperature of 90 degrees. The Yount-Lee Oil Co.'s No. 1 Davis, completed last week, is showing 6 per cent water. It increased from 6,000 bbls. original output to 9,500 bbls. last week. There are now 12 producers in the new deep sand area on the southeast and northwest sides of the hill, with the Rio Bravo Oil Co.'s No. 1 Texas & New Orleans Railway right of way and Paggi Brothers' No. 1 Gordon nearing the sands.

The following is the record of the deep sand area to date:

Company and Well—	Production	Gravity	Depth
Yount-Lee Oil—No. 2 McFadden	75	19.8	3,080
Yount-Lee Oil—No. 3 McFadden	450	19.	3,015
Yount-Lee Oil—No. 4 McFadden	160	28.	3,518
Yount-Lee Oil—No. 5 McFadden	900	19.8	2,770
Yount-Lee Oil—No. 6 McFadden	1,700	25.1	2,800
Yount-Lee Oil—No. 3 Gladys	150	18.7	3,015
Yount-Lee Oil—No. 4 Gladys	800	23.5	2,965
Yount-Lee Oil—No. 5 Gladys	5,700	29.	2,770
Yount-Lee Oil—No. 1 Davis	9,500	22.5	2,860
Gulf Production—No. 1 Weed	2,800	23.5	2,860
Sun Oil Co.—No. 1 McLean	4,500	23.5	2,875
Hines Brothers—No. 1 Quinn	3,500	23.6	2,775
	30,235		

The Yount-Lee Oil Co. completed No. 4 Gilbert in the deep sand section on the southwest side of the Sour Lake Pool late in the week at 4,100 feet, flowing 2,000 bbls. initially, 36 gravity. Later the well increased to 2,300 bbls. pipeline oil.

The Rio Bravo Oil Co. extended the Saratoga deep sand 900 feet to the north when it brought in No. 5 Fountain at 4,264 feet, making 600 bbls. by heads, 38 gravity oil. The fly in the ointment there is that the well now is making around 40 per cent water. The deep sands are nearly a mile north of the caprock, which is the original part of the pool, getting the oil at 900 to 1,200 feet, around 17 gravity.

Other Completions

In the Hull Pool, the Humble Oil & Refining Co.'s No. 3 Sterling is flowing 3,000 bbls., 5 per cent water, at 4,620 feet. Its No. 23 Guedry is bailing at 2,975 feet. The Texas Company abandoned No. 10 Merchant at 4,350 feet. The Empire Gas & Fuel Co.'s No. 19 Barngrover is bailing at 3,125 feet. The Humble company got salt water in No. 6 Marshall at 775 feet. The Gulf Production Co.'s No. 69 Phoenix is making 125 bbls. at 2,075 feet and No. 9 Thomas 300 bbls., 75 per cent water, at 3,550 feet. The Republic Production Co.'s No. 131 Dolbear is bailing at 2,975 feet. No. 128 Dolbear, a 3,000-bbl. well last week, is now heading 300 bbls.

In the Orange Pool, the Humble Oil & Refining Co.'s No. 25-A Chesson is flowing 200 bbls. at 3,475 feet. The Rycade Petroleum Co. got two wells. No. 5-B Cow Bayou is good for 115 bbls. at 3,375 feet and No. 10 is making 200 bbls. at 3,890 feet. The Rex Petroleum Co.'s No. 4 Carbello will pump at 3,375 feet. The Texhoma Oil Co.'s No. 6 Chesson is bailing at 3,600 feet. Gulf Production Co.'s No. 23 Hager fee was abandoned as a junked hole at 4,625 feet. It will be remembered it blew out two weeks ago, the derrick and drilling rig dropping into a crevice.

In the Batson Pool, the Gulf Production Co.'s No. 168 Wing is pumping 25 bbls. at 900 feet. Its No. 61 Choate is bailing at 1,175 feet. The Paraffin Oil Co.'s No. 66 Paraffin is good for 10 bbls. at 1,100 feet. In the deep sand section on the north and west, the Capitol Oil Co.'s No. 5 Hodges is standing at 3,720 feet with 2,500 feet of fluid in the hole, of which 300 is oil. The hole was drilled to 3,954 feet, then plugged back to 3,720 feet and got salt water.

In the Goose Creek Pool, Sun Oil Co.'s No. 6 Wright is pumping 16 bbls. at 2,510 feet. Gulf Production Co.'s No. 18 Smith bailed salt water at 2,600 feet and its No. 8 State Land is bailing.

In the Humble Pool, the Posey Oil Co.'s No. 1 Bering-Cortes is a 50-bbl. pumper at 1,000 feet and McDonough & Castellene's No. 2 Bender is good for the same amount. The Brane Oil Co.'s No. 5 Perkins is dry at 2,450 feet.

At Pierce Junction, the Gulf Production Co.'s No. 18 Taylor showed salt water at 3,540 feet. Same company's No. 28 Davis at Big Creek is pumping 80 bbls. at 3,275 feet.

Two wildcats were abandoned during the week. In Jefferson County, the Deutser Oil Co. quit No. 1 fee at 1,600 feet. The Humble Oil & Refining Co. plugged No. 1 Weiss in Hardin County after drilling to 3,006 feet. Down in Bee County, Beneduum & Trees abandoned No. 1 Goree at 4,418 feet.

Estimated Production

The estimated daily average gross production for the week of July 10 in the coastal pools is 119,915 bbls., compared with 107,070 bbls. last week.

Compared with last week Spindletop increased 12,250 bbls. The table above gives the total output on the last day of the week, after Hines Brothers' well came in, but the average for the seven-day period is slightly less. West Columbia increased 1,010 bbls.; Vinton, 425 bbls.; Sour Lake, 590 bbls.; Lockhart, 375 bbls., and Boling 150 bbls. The Goose Creek Pool increased 300 bbls; Hull, 1,250 bbls., and Orange, 825 bbls.

The following is the estimate for each pool:

Pool—	Daily Av.
Boling	2,450
Batson	1,460
Blue Ridge	730
Big Creek	1,060
Barber Hill	500
Dayton	65
Damon Mound	760
Edgerly (La.)	800
Goose Creek	11,200
Humble	4,000
Hull	18,800
High Island	155
Jennings (La.)	1,300
Lockport (La.)	5,875
Markham	70
Nash Dome	655
Orange	9,150
Orchard	800
Pierce Junction	1,510
Piedras Pintas	75
Spindletop	28,000
Saratoga	1,850
Sour Lake	6,200
South Liberty	5,325
Vinton (La.)	6,925
West Columbia	10,010
Welsh and Anse La Bute (La.)	75
Miscellaneous	115
Total	119,915

Southwest Fields

The estimated gross daily average for the southwest fields for the week is 39,440 bbls., an increase of 910 bbls. compared with last week. The Luling Field increased 450 bbls. and Mirando increased 515 bbls.

The estimate for each field is as follows:

Field—	Daily Av.
Luling	21,700
*Mirando	10,000
Somerset	2,000
Calliham	120
Rockdale-Minerva	950
Lockhart	4,670
Total	39,440

*Includes Webb, Jim Hogg and Zapata Counties and part of Duval County (Cole-Bruni.)

Grand total for week	159,355
Grand total last week	146,600
Net increase	12,755

A total of 28 wells were completed during the week, of which 7 were dry and 4 salt water holes, leaving 17 net producers. The new production totals 14,606 bbls. Five holes are bailing at the close of the week.

The following table shows the results of the week's work at a glance:

District—	Comp.	Prod.	Dry	Salt Wtr.	Bailing
Batson	3	35	0	1	1
Big Creek	1	80	0	0	6
Goose Creek	2	16	0	1	1
Humble	3	100	1	0	0
Hull	5	3,200	1	1	2
Spindletop	2	8,000	0	0	6
High Island	1	10	0	0	6
Spindletop	2	8,000	0	0	0
Saratoga	1	600	0	0	0
Sour Lake	2	2,000	1	0	0
Orange	5	665	1	0	1
Pierce Junction	1	...	1	0	0
Miscellaneous	2	...	2	0	0
Totals	28	14,606	7	4	5
Last week	27	24,524	7	2	5

Its a maxim on the coastal belt of Texas that litigation follows the finding of oil. James Weed is asking the courts for a permanent injunction restraining the Rio Bravo Oil Co. from drilling on land owned by the Southern Pacific Railroad in the new deep sand section at Spindletop. The railroad company has a right of way 200 feet wide through the pool on which the Rio Bravo Oil Co., a subsidiary, is drilling. Weed contends the land can be used for right of way

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REVIVAL OF SPINDLETOP RECALLS THE DREAM OF PATILLO HIGGINS

The sensational revival of the old Spindletop Field occasioned by the discovery last fall of a deep pay which was last week producing 26,000 bbls. a day of Grade A oil from the few wells thus far completed recalls the early days of the field, 25 years ago, when some of the largest producing wells ever brought in in the United States were uncovered in the shallower pay, realizing the dream of Patillo Higgins.

Spindletop is a little rise in the ground close to the city of Beaumont. Captain A. F. Lucas of Washington, D. C. was drilling for sulphur on the Patillo Higgins farm of 150 acres, when on January 10, 1901, the sulphur test developed into an oil well. A story recently written says the drilling crew was away at lunch when the well came in, but an early day story of the discovery of oil in that region had it that the crew was working at the casing when the rush of oil began.

The drillers were not expecting a flow of oil, says the ancient chronicle, and while working with the casing it began to rise out of the hole. The force was too great for them to control it and it shot up through the derrick the oil rising to a height of about 160 feet before the men in the derrick had time to descend. The flow continued for ten days before the well was shut in. The column of oil flowed steadily and the height of the stream remained constant. The spray from the oil was blown to a considerable distance and saturated the prairie grass and the escaping oil formed a large pool which was dammed in by dikes. On March 3 a spark from a locomotive ignited the grass and the pool of oil burned making a remarkable spectacle because of the dense volumes of smoke.

The capacity of the well was estimated after it was shut in by allowing it to flow into a 35,000 bbl. tank which had been constructed. The tank was filled in a trifle less than 12 hours, and the flow of the oil was generally reported to have been 70,000 bbls. a day.

The pressure of the oil upon a steam gauge attached to the pipe at the well reached 104 pounds per square inch.

The oil had a gravity of 22 degrees Baume, and contained a considerable quantity of sulphur. Tests showed that the percentage of light oil it contained was very low and it was regarded as fuel oil.

The log of the Lucas well showed a sand mixed with limestone concretions and fossils from 1,050 to 1,160 feet, total depth.

The 4-inch pipe used for drilling was shot out of the well carrying block and tackle with it, followed by the columns of water used in drilling and then by the oil. The hydraulic system of drilling was used. The well was begun on October 27, 1900.

A recently written reminiscent story by Marvin Brown, publicity director of the Beaumont Chamber of Commerce, recalls the fact that Patillo Higgins, the owner of the farm on which Captain Lucas

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Burbank Field Extended South and East

Well Completed Half-Mile South; Another 1 Mile East. Less Crude Being Withdrawn from Oklahoma Storage

By J. L. Dwyer

There has been a softening of the crude situation in Oklahoma during the past three weeks with a sharp drop in the amount of oil which is being withdrawn from storage. One month ago, the stocks of the crude oil purchasers showed a daily withdrawal of approximately 125,000 bbls. Today finds that figure decreased to 35,000 bbls. This decrease is not due to increased production as Oklahoma's daily yield has dropped slightly during that time. The principal cause of the change in the storage, is the decreased amount of crude which the Mid-Continent refiners are accepting and also a drop in the movement of crude oil to eastern purchasers.

This is not viewed with apprehension by either the producers or the purchasers, but is interpreted as being more of an economic adjustment which is made in order that a balance may be struck between the daily requirements and the daily production. For sometime, the situation has been slightly top-heavy, and crude has been withdrawn from storage to make gasoline which went into storage.

The fundamental situation seems sound, and there is still a brisk competition between the purchasers of crude for production from new wells; but the premium payers seem to have been effectively silenced, and no traces of extra prices for crude have been heard in some time.

Burbank Field Extended

Two extensions of the great Burbank Field, a new well in the Wilcox sand in the North Braman Pool in Kay County, the appearance of water in the new extension of the Tonkawa deep sand operation, and the finding of what may be another producing formation in the wildcat well of the Reiter-Foster Oil Co.'s well in Payne County, were the chief claims of Oklahoma fields for interest this week.

The Burbank Field was extended a half mile to the south by the Phillips Petroleum Co.'s No. 4, SE cor. SW, Section 21-26-6, which had the regular Burbank sand 2,885-2,941 feet, with a total depth of 2,944 feet. This well which was very light before the shot made a daily production of 525 bbls. after being shot with 140 quarts. Phillips Petroleum Co. also had two other completions in this sector in No. 12, SE cor. NE SW, Section 21-26-6, which had the sand 2,892-2,943 feet, and made 540 bbls. after a shot of 120 quarts, and No. 2, SE cor. SW NE, Section 2-27-5, which is dry and abandoned at 3,012 feet.

The Burbank Field will be extended a mile to the east by the well now being completed by the Kewanee Oil & Gas Co. It is No. 1, SW cor. NE, Section 34-27-6, which is making 4,000,000 feet of gas and some oil from sand, the depth of which cannot be ascertained at this time, but which is almost certain to conform with the Burbank sand.

In the North Braman Field, the Comar Oil Co.'s No. 1 Day, NE cor. SE, Section 20-29-1w, an old well drilled deeper, had the Wilcox sand 3,340 feet with a show of oil and a slight amount of gas. The gas increased at 3,375 feet, and at 3,382 feet the well started flowing 5 bbls. an hour. As this is written, the well is drilling at 3,384 feet with 8,000,000 feet of gas and 12 bbls. of oil an hour. This is a diagonal offset to the Comar Oil Co.'s No. 7 Pribboth, the Wilcox sand discovery well of the pool which is still producing 1,100 bbls. daily. No. 1 Day is the second Wilcox sand well to be completed at North Braman.

In the South Braman Pool, the Comar Oil Co.'s No. 1-W Bechtel, SE cor. SW, Section 5-28-1w, looks very discouraging for production in the Wilcox, and is shut down for orders with a hole full of water in this horizon at 3,403 feet.

The Reiter-Foster Oil Co.'s No. 1, SW cor. SW, Section 4-19-1w, had what may be another sand at 4,844 feet, with no increase in production. The well is still making 75 bbls. daily, and is drilling ahead at 4,857 feet.

Increased Activity.

There has been an increase in activity in the region east of Tulsa County, and Wagoner County has been revived with several good producing wells. Production in this section is light but profitable, as drilling and operating costs are extremely light. W. R. Summerville's No. 2 Kelly, SW cor. NW NE NE, Section 6-17-15, had sand at 1,309-42 feet with 1,000,000 feet of gas and 500 feet of oil in the hole and will be shot.

In the recent extension of the Tonkawa deep sand operation, The Texas Company's No. 2, SW cor. NE, Section 28-25-1w, completed four weeks ago, and which spread the area of the pool, has begun to make water after a small shot of 15 quarts. Although there have been several rumors that the water had appeared in this pool, this is the first evidence of its intrusion. It is not unusual, and has caused no alarm, as many of the best leases in the deep sand there have been making considerable water for a long time.

Creek County is active as usual with new production coming from regions where old wells have been drilled to deeper levels, and a scattered list of new spots. The Roxana Petroleum Corp.'s No. 1-A Sewell, NW cor. SW NE, Section 18-19-9, west of Sapulpa, was drilled to the Wilcox sand at 2,984-87 feet and made 300 bbls. the first 10 hours. The Pioneer Petroleum Co.'s No. 5 Bucktrot, NW cor. SW, Section 24-17-10, near Kellyville, is making 35 bbls. an hour from sand at 2,402-47 feet. This sand is very likely a member of the Dutcher group. No. 6 Bucktrot, NW cor. SW SW NE, Section 24-17-10, made 30 bbls. an hour from sand, the record of which is not available. J. H. Wright's two wells in Section 24-17-10 are making 60 bbls. an hour from this sand. They have been completed for some time, and efforts made by some of the major interests to purchase the property have been unsuccessful.

In the Blackwell district of Kay County, the Blackwell Oil & Gas Co.'s No. 1 Moore, NE cor. SW, Section 8-27-1w, flowed 325 bbls. from sand at 3,480-90 feet.

In Pawnee County, the Marland Oil Co. has an old well drilled deeper in No. 11 School Land, well No. 1, in Section 33-20-5, which had the deeper sand at 3,682 feet with a show of oil; an increase at 3,693 feet, a hole full of oil at 3,699 feet, and a total depth of 3,708 feet. The well made one flow of 25 bbls.

In southern Oklahoma, the Prairie Oil & Gas Co. and Franklin's No. 3 Pruitt, NE cor. SE NW, Section 3-2s 3w, had broken sand at 1,934-65 feet, and sand at 1,965-2,004 feet and made 1,700 bbls. daily.

An interesting wildcat, which is said to be located on good geology, will be spudded this week. It is the Twin State Oil Co. and Gardner Petroleum Co.'s No. 1, NE cor. NW NE, Section 23-18-1, in Payne County.

Production by Companies

Production of some of the Oklahoma pools by companies and wells is given below:

Wewoka Deep Sand

Company	Wells	Prod.
Amerada Pet. Corp.	4	7,358
Dixie Oil Co.	1	488
Independent-Atlantic	1	871
Homa-Okla Oil Co.	2	284
Magnolia Pet. Corp.	8	8,086
Prairie Oil & Gas Co.	1	1,931
W. R. Ramsey	2	3,707
Total	19	22,724

Seminole Pool (Section 24-9-6)

Barnsdall Oil Co.	2	1,604
Indian Territory Illum. Oil Co.	2	635
Searight and others	1	85
Superior Oil Co.	1	22
Tidal Oil Co.	1	1,174
Total	7	3,520

Ingells Pool (23-19-4)

Prairie Oil & Gas Co.	7	3,521
Roxana Pet. Corp.	2	2,090
Magnolia Pet. Corp.	1	7
Total	10	5,618

Skelly-Ford Area

Carter Oil Co.	3	135
Skelly Oil Co.	5	277
Prairie Oil & Gas Co.	1	2
Independent Oil & Gas Co.	2	27
Phillips Petroleum Co.	2	492
Mid-Continent Petroleum Corp.	7	1,170
Total	21	2,104

Burbank

Carter Oil Co.	282	5,376
Comar Oil Co.	7	112
Mid-Continent Petroleum Corp.	106	1,684
Devonian Oil Co.	16	111
Gypsy Oil Co.	193	2,462
Kewanee Oil Co.	25	200
Laurel Oil & Gas Co.	16	150
Lewis Oil Co.	19	1,263
Lorraine Oil Co.	15	74
Midland Oil Co.	37	587
Mid-Kansas Oil & Gas Co.	45	982
Phillips Petroleum Co.	207	12,829
Delmar Oil Co.	16	724
Phillips-Skelly	180	2,237
Prairie Oil & Gas Co.	127	2,866
Roxana Petroleum Corp.	54	476
Seamand and others	1	4
Simmons-Moore	29	197
Sinclair Oil & Gas Co.	144	1,286
Skelly Oil Co.	31	1,335
Tidal Oil Co.	49	471
The Texas Company	16	228
Twin State Oil Co.	24	306

Fairfax

Phillips Petroleum Co.	9	332
Prairie Oil & Gas Co.	7	1,026
Sinclair Oil & Gas Co.	1	5
Midland Oil Co.	2	35

Kay County

Boles and others	3	187
Carter Oil Co.	11	839
Comar Oil Co.	17	978
Mid-Continent Petroleum Corp.	16	624
Gypsy Oil Co.	18	288
Laurel Oil & Gas Co.	5	166
Mid-Kansas Oil & Gas Co.	10	784
Phillips Petroleum Co.	32	2,082
Prairie Oil & Gas Co.	4	50
Pure Oil Co.	4	140
Roxana Petroleum Corp.	9	952
Skelly-Phillips	20	259
Sinclair Oil & Gas Co.	5	151
The Texas Company	16	137
Twin State Oil Co.	15	660
Total	1,873	45,457

Pontotoc County

The Carter Oil Co. has a rig up for No. 1 Wren, SW cor. NE, Section 18-3-4, Pontotoc County.

The American Supply Co.'s No. 1, SW cor. SE SW, Section 11-4-7, is dry and abandoned at 1,201 feet.

Results in Caddo County

Briscoe & Hall's No. 1, NE cor. SE NE, Section 10-5-9w, Caddo County, had sand at 2,150-64 feet and broken sand at 2,164-400 feet. It swabbed 50 bbls. the first day.

English Drilling Co. has a rotary rig up for No. 1 Gilliam, NW cor. SE, Section 22-6-10w, Caddo County. Gladstone Oil Co.'s No. 1, NE cor SW SE, Section 31-6-9w, is drilling at 1,100 feet. Lone Star Gas Co. is rigging up a rotary for No. 5 Bort, CSE NW, Section 11-5-9w.

Grady County Completions

White Eagle Oil Co. has abandoned the location for No. 1, NW cor. NW, Section 8-3-5w, Grady County. Carter Oil Co.'s No. 1, SE cor. NW SE, Section 21-3-5w, had sand at 1,759-79 feet with 2,500,000 feet of gas and 1,779-84 feet with a 62-bbl. oil production. Garvin and others

TROPICAL OIL CO. HAS 52,000 BBLS. POTENTIAL PRODUCTION IN COLOMBIA

By Special Correspondent

BARRANQUILLA, Colombia, July 1. The Tropical Oil Co., a subsidiary of the Standard Oil Co. of New Jersey, is the only operating company in Colombia with commercial production at the present time. The field is located at El Centro, 400 miles from the coast, and reached by river steamers and hydroplane. The terminal is located at the historical old city of Catagena.

The extent of the company's three proven structures is not known. It has drilled more than 100 wells without a sign of a duster, and keeps eight rotaries and two strings of cable tools running continuously. The oil is of 28 gravity and recovered from depths ranging from 1,600 to 2,700 feet. A large power plant with sufficient voltage to operate the whole field for drilling and pumping is nearing completion.

The company operates its own railway from the field to Barranca-Bermeja, a distance of 27 miles. Barranca-Bermeja is on the Magdalena River and the Tropical Oil Co. has a refinery there with a 2,500-bbl. capacity which is sufficient to supply this country's need of gasoline and kerosene. It also has fuel stations along the entire length of the river to supply oil-burning boats, of which it owns a fleet, handling only company cargo, taking supplies in and delivering oil along the river.

The Andian National Corp. (owned by Tropical Oil) has completed a 10-inch pipeline from the field to Cartagena. The line is equipped with eight booster stations using oil engine driven pumps and has a capacity of 35,000 bbls. daily, and is now handling 22,000 bbls., with only four of the eight stations running. The company finished testing a line with water May 29 and started oil through it May 31, and after six days continuous pumping the oil reached Cartagena where the company expects to load the first 100,000 bbls. in tanker July 1, and incidentally Colombia will export her first oil.

Production of 52,000 Bbls.

The Tropical Oil Co. is producing all the line can handle with the wells choked in. It has an estimated production of 52,000 bbls. daily, if the wells were opened up. Its contract with the government is for 25 years after the first oil is exported. The Andian National Corp. is already making preparations to duplicate the line, which will take over a year after actual work begins. What effect this new supply of oil will have on the world's market is something for the wise birds to shoot at.

The South American Gulf Oil Co., after drilling three dry holes, gave up its concession and abandoned Colombia two years ago, only to come back stronger than ever this year by taking over the Hammond Oil Co. and the Colombia Petroleum Co. The latter is known as the Barco Concession, and was controlled by the Doherty interests. This concession contains over 1,500,000 hectares, being one of the largest in South Americ and located in an almost inaccessible place, bounded on the north by a river, Venezuela and bad Indians; and on the east, west and south by high mountains. The former owners drilled two wells there several years ago getting oil in both, but owing to the remoteness of the concession the cost of transportation was thought to

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No. 1, SW cor. NW SE, Section 27-3-5w had sand at 1,372-83 feet and made 17 bbls. the first 24 hours. It is now making 10 bbls. and some water. McBride and others' No. 1, NE cor. SW, Section 34-3-5w, had sand at 1,358-63 feet and is making 8 bbls. on the pump. J. D. Todd and others' No. 1, NE cor. SW SE, Section 34-3-5w, had sand at 1,339-45 feet and is estimated at 50 bbls. Magnolia Petroleum Co.'s No. 1, C NW SW, Section 14-4-8w is dry at 2,626 feet.

Carter Oil Co. has built a rotary rig for No. 1 Harrison, SW cor. NE SE, Section 21-3-5w, Grady County. No. 1 Harrison, NE cor. SW SE, Section 21-3-5w is rigging up. No. 1, NE cor. SE SW, Section 27-3-5w has cemented the surface casing. W. S. Critchlow's No. 2, SE cor. SW NW, Section 27-3-5w had sand at 1,237-48 feet and is estimated at 15 bbls. in this sand. It is drilling at 1,419 feet. Nicholos and others' No. 1, C NE SE, Section 26-4-8w is spudded.

Carter County

Amerada Petroleum Corp.'s No. 15, NE cor. SE NW, Section 28-5s-1, Carter County, had sand at 1,127-35 feet and 1,155-64 feet and is pumping 100 bbls. The Texas Company's No. 2, NW cor. NE SE, Section 17-1n-3w had sand at 1,613-30 feet and swabbed 50 bbls.

S. P. Smith has a rotary rig up for No. 7 Newberry, SW cor. SE SW, Section 14-1n-3w.

Stephens County

W. B. Green has a dry hole at 1,754 feet in No. 1, SW cor. SE SE, Section 7-2-4w, Stephens County. Hoffer Oil Co.'s No. 1, NE cor. SE SE, Section 6-2-8w, is dry and abandoned at 3,035 feet. Kinsey-Law's No. 3, SW cor. NW SW, Section 31-1-8w, is dry at 2,140 feet. T. R. McQueen's No. 5, NE cor. SW SW, Section 20-1s-8w, is completed for a gas well. Sand was touched at 2,100 feet, and the well is shut in, good for 4,000,000 feet. Pierce-Brown's No. 4, CWL NW SE, Section 27-1s-8w, was shot with 10 quarts and is estimated at 30 bbls. from sand at 1,690-95 feet. Guy Brown and others' No. 1A, NW cor. SE, Section 28-1s-8w, is flowing 60 bbls. from sand at 1,652-70 feet.

Magnolia Petroleum Co. has a rig on the ground for No. 1 Smelling, NW cor. SW NW, Section 19-2-9w. Westheimer & Daube have built a rig for No. 1 Snelling, SW cor. NW NW, Section 19-2-9w. Fisher & Conner are drilling at 750 feet in No. 4, CWL NW SE, Section 27-1s-8w. Guy Brown and others have built a rotary rig for No. 2A Lambdin, NW cor. SE, Section 28-1s-8w. Kole & Beard have rigged up a rotary for No. 2 Dickens, CWL SW SW, Section 30-1s-8w.

Comanche County

Magnolia Petroleum Co. is drilling at 450 feet in No. 1, NW cor. NE, Section 10-3-10w, Comanche County. Garvin Drilling Co.'s No. 1A, SE cor. SE, Section 32-1s-10w, is drilling at 450 feet.

Jefferson County

Simpson-Fell and others have a dry hole at 2,514 feet in No. 1, NE cor. NW NE, Section 31-6s-5w, Jefferson County. Brown and others' No. 6, SE cor. NW NW, Section 33-6s-5w, had sand at 1,411-15 feet with water and was plugged back to a sand found at 1,350-70 feet and is pumping 110 bbls. The Ascott Oil Co.'s No. 1, C north half SE SW, Section 34-6s-6w, is dry and abandoned at 1,814 feet.

Miscellaneous

H. C. Deems No. 7, NE cor. SW SW, Section 31-18-15, Wagoner County, is completed for 25 bbls. after a shot of 40 quarts in sand at 1,258-85 feet.

Kay County

Ballentine and others' No. 3, NE cor. NW Section 28-27-1, had sand at 3,635-50 feet and swabbed 30 bbls. after a shot of 25 quarts. Mississippi Valley Oil Co.'s No. 1-A, C NW NE, Section 3-27-2, had sand at 3,404-27 feet with 5,000,000 feet of gas and the owners are trying to clean it up and make a gas well out of it.

Marland Oil Co. has rigged up No. 1 Walkingsky, C N half NW SE, Section 18-25-2.

Garfield County New Work

Penders Oil Co. is drilling at 1,250 feet in No. 1, NW cor. NW, Section 9-21-3w, Garfield County.

Hughes County

In Hughes County, the Sands Petroleum Co.'s No. 1, SE cor. SE, Section 10-8-9, had 10,000,000 feet of gas in sand at 2,825-36 feet. Brock and others' No. 1, CNW NW, Section 22-8-9, had sand at, 3,052-60 feet with 5,000,000 feet of gas and some water. Kingwood Oil Co.'s No. 1, NW cor. SW SW, Section 29-8-9, made 125 bbls. naturally from sand at 3,451-506 feet.

Independent Oil & Gas Co. and others are drilling at 750 feet in No. 3, NW cor. SW SE, Section 26-9-9. Transcontinental Oil Co. and others' No. 2, NE cor. NW, Section 35-9-9, is drilling at 500 feet. Hart & O'Loughlin have rigged up No. 1, SE cor. NW SE, Section 4-8-11.

In Okfuskee County

Sinclair Oil & Gas Co.'s No. 1, NW cor. SW, Section 36-11-9, Okfuskee County, had 55,000,000 feet of dry gas in sand at 3,138-60 feet, and is shut down for orders. Amerada Petroleum Corp.'s No. 1, NW cor. SW, Section 36-11-9, had gas sand at 2,923-44 feet with 15,000,000 feet of gas and is drilling deeper. It is not completed. Colorado Oil & Gas Co.'s No. 4, CNL SW SE, Section 11-11-11, is dry and abandoned at 1,241 feet. Champlin Refining Co.'s No. 8, SE cor. NE NW, Section 22-11-11 is dry at 2,827 feet. No. 1, SE cor. SW NW, Section 23-11-11 had sand at 2,024-73 feet with 7,000,000 feet of gas.

New Operations Started

Atlantic Oil Producing Co. has built a rig for No. 1 Berryhill, SE cor. SW NE, Section 35-11-9. Gilcrease Oil Co. has built a rig for No. 2 Wind, SW cor. SE NE, Section 35-11-9. Lennox Oil Co.'s No. 1, NW cor. NE, Section 3-11-9, is drilling at 1,250 feet. Frank Havel has rigged up No. 1 Likowski, NE cor. SE SW, Section 23-11-11. Vierson and others have a rig on the ground for No. 2 Barnett, NW cor. NE, Section 4-10-11.

Completions in Seminole

Dixie Oil Co.'s No. 1, NW cor. NE SE, Section 25-8-7, Seminole County had sand at 3,015-55 feet and 3-328-55 feet, with water. It was plugged back to 3,035 feet and shot with 60 quarts and is good for 20 bbls. Mid-Continent Petroleum Co.'s No. 1, NW cor. NE, Section 23-8-7, had sand at 3,197-3,200 feet and made 7 bbls. a day naturally. Winona Oil Co.'s No. 1, SE cor. NW NE, Section 18-9-8, got sand at 1,900-05 feet with a spray of oil and some water. Independent Oil & Gas Co.'s No. 1, SW cor. NE SE, Section 7-9-8, found sand at 3,237-63 feet and made 90 bbls. after a shot of 5 quarts. Jarvis and others' No. 2, SE cor NE, Section 7-9-8 had sand at 3,265-99 feet and is good for 80 bbls. Sinclair Oil & Gas Co.'s No. 1, NW cor. NW, Section 17-9-7 is estimated at 50 bbls. from sand at 4,117-26 feet.

Indian Territory Illuminating Oil Co.'s No. 2, NE cor. NW SE, Section 24-9-6, is making 70 bbls. from sand from 3,990-4,014 feet. Tidal-Osage Oil Co.'s No. 1, NE cor. SW, Section 24-9-6, had sand at 3,928-85 feet and made 1,160 bbls. naturally. Barnsdall Oil Co.'s No. 1, SE cor. NW, Section 24-9-6, was good for 1,600 bbls from sand at 3,825-40 feet. No. 2, on the same lease, NE cor. SE NW, Section 24-9-6, made 350 bbls from sand at 3,930-60 feet. Indian Territory Illuminating Oil Co.'s No. 2, NE cor. NW SE, Section 24-9-6, had sand at 3,990-4,024 feet and made 70 bbls. of oil and 40 bbls. of water. No. 8, SE cor. SW NE, Section 24-9-6, made 40 bbls. from sand at 3,993-4,008 feet. Mid-Continent Petroleum Corp.'s No. 1, NE cor. SE SW, Section 24-9-6, made 2 small flows from sand at 3,915-19 feet. Independent Oil and Gas Co. and others' No. 2, SE cor. NE, Section 7-9-8, had sand at 3,265-99 feet and made 190 bbls. after a shot of 40 quarts.

Seminole County's New Work

Magnolia Petroleum Co. has rigged up No. 1 Sparks, NW cor. SW, Section 11-9-5. Barnsdall Oil Co. is drilling at 650 feet in No. 3, SW cor. SE NW, Section 24-9-6. Amerada Petroleum Co. has the rig up for No. 1 Cudjo, NE cor. NW SW, Section 34-9-6. Southwestern Petroleum Co. has rebuilt the rig and skidded it in No. 3A Peter, SW cor. SE NE, Section 18-9-8. Magnolia Petroleum Co. is drilling at 450 feet in No. 3, NE cor. NE NW, Section 23-8-7. Ramsey and others have rigged up a twin well in No. 6 Amos, NW cor. SE SE, Section 31-8-8.

Indian Territory Illuminating Oil Co.'s No. 1, NW cor. NW, Section 1-7-6, is a rig on the ground. Magnolia Petroleum Co. has spudded No. 2, NE cor. NW SE, Section 6-7-8. The rig is up for No. 1 Vierson, SE cor. NW, Section 5-6-7.

Magnolia Petroleum Co. has rigged up No. 1 Sparks, NW cor. SW, Section 11-9-5. Indian Territory Illuminating Oil Co. has a rig on the ground for No. 1 Fixico, SE cor. NW, Section 15-8-6. Same company's No. 1, NW cor. SW SW, Section 26-8-6 is drilling at 1,050 feet. Independent Oil & Gas Co. is rigging up No. 1 Kidd, SE cor. NW SE, Section 7-9-8. Mid-Continent Petroleum Corp. has rigged up No. 2 Cullins, SE cor. SW, Section 7-9-8. Plover Drilling Co. has the rig up for No. 4 McDaniels, NW cor. SE SE, Section 7-9-8.

T. B. Slick's No. 1 SE cor. SW SE, Section 7-9-8, had sand at 3,241-67 feet and made 80 bbls. naturally. It will be shot. Southwestern Petroleum Co. has spudded No. 3A, SW cor. SE NE, Section 18-9-8. Ramsey and others' No. 6 Amos, NW cor. SE SE, Section 31-8-8 is drilling at 760 feet. Prairie Oil & Gas Co. has the rig up for No. 9 Amos, NE cor. SW SE, Section 31-8-8.

Lincoln County

At Davenport, Lincoln County, the Prairie Oil & Gas Co.'s No. 4, SE cor. NW, Section 35-15-5 had sand at 3,362-94 feet and made 50 bbls. after a shot of 40 quarts. In the Skelly-Ford area, the Mid-Continent Petroleum Corp.'s No. 5, SW cor. NW, Section 8-15-6, made 2,300 bbls. initially from sand at 3,817-46 feet and is now making 375 bbls. The Carter Oil Co.'s No. 8, SW cor. NE NE, Section 2-14-5 had sand at 3,344-91 feet and made 25 bbls. after a shot of 60 quarts. Magnolia Petroleum Co. has abandoned the location for No. 1, NE cor. NE, Section 4-14-5.

Magnolia Petroleum Co. is drilling at 250 feet in No. 3, NE cor. SW, Section 8-15-6. Mid-Continent Petroleum Corp.'s No. 8, SE cor. NW, Section 8-15-6, is drilling at 950 feet. No. 9, NW cor. SE NW, Section 8-15-6, is drilling at 200 feet. Phillips Petroleum Co.'s No. 1, NW cor. SE, Section 8-15-6, is drilling at 600 feet. Prairie Oil & Gas Co.'s No. 1 SW cor. NE, Section 8-15-6, is drilling at 450 feet.

Okmulgee Completions

Jackson & Wise's No. 8, C SW SW, Section 2-15-11, Okmulgee County, is dry and abandoned at 2,358 feet. The Carter Oil Co. and Jones have a failure at 3,045 feet in No. 2, NW cor. SE, Section 9-15-12. C. E. Campbell and others' No. 2, CWL NW SW, Section 24-15-12 had sand at 2,604-26 feet and made 50 bbls. after a shot of 20 quarts. Ted Savoy's No. 1, SW cor. NE SW, Section 24-15-12, is dry and abandoned at 2,653 feet. Barbara Oil Co.'s No. 4, SW cor. NE NW, Section 25-15-12, had 11,000,000 feet of gas in sand at 1,846-61 feet. Humble Oil Co.'s No .3, SE cor. SW NE, Section 4-15-13, is dry at 2,569 feet. Thompson & Black's No. 1, SE cor. NW, Section 19-15-13, is dry at 2,766 feet. Future Development Co. has a dry hole at 2,165 feet in No. 4, NW cor. SE SE, Section 2-15-14. Vinvent and others' No. 1, SW cor. SE NE, Section 3-15-14, had sand at 1,515-26 feet with 35 bbls. of oil. J. L.

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NEW WELL IN RICE COUNTY, KANSAS, DOUBLES PRODUCTION OF THAT AREA

By J. L. Dwyer
Staff Correspondent, Kansas Fields

The completion of a good-sized well in Rice County was the bright spot in the Kansas news last week. There have been four wells completed in this area to date, and the new well exceeds the combined production of the other three. It is R. E. Youker's No. 2 Walstein, SW cor. NE NW, Section 2-21-6w, and it had the chat formation from 3,363-3,409 feet. Its daily production for the 24 hours ending Monday of this week was 820 bbls. by flow and by swab.

In the new pool north of Winfield which was opened recently by the well of the J. A. Hull Co. and the Shaffer Oil & Refining Co. the trading has abated as all available leases have been purchased, and the drilling campaign is started. This is a siliceous lime well and is No. 1 State Land, NW cor. SE, Section 15-32-4. It has averaged 830 bbls. daily for the past two weeks from pany found 3,303-20 feet. The gravity of the oil produced is 40 degrees, assuring an outlet for all production. There are seven operations under way offsetting and adjoining the well. Three of the wells are drilling, and rigs are erected for the remaining four.

South of Dexter in Cowley County, the S. H. E. Petroleum Co. plans to shoot No. 2 Day, SE cor. NE NW, Section 24-34-6, where a good showing of oil was found in sand 1,450-65 feet.

In Butler County, a wildcat well north of the Keighley Pool has a good showing of oil. It is White Eagle Oil & Refining Co. and others' No. 1 Seward, SE cor. SW, Section 12-27-7, and it tapped the sand at 2,150 feet.

In Greenwood County, Frank Swift and others have apparently opened up a new pool in the first break of the lime. It is in No. 1 Edwards, SE cor. NE, Section 7-26-10 and had the pay 2,148-66 feet with 1,000 feet of oil in the hole. It is rated at 100 bbls.

In Kingman County, the Allison & Fitzwilliams and others' No. 1 in Section 25-27-7w, is evidently a failure with a hole full of water in the Wilcox sand 4,281-93 feet.

Greenwood County Completions

R. Day and others' No. 2, SW cor. SW, Section 1-22-10, had sand at 2,006-91 feet and made 250 bbls. after a shot of 350 quarts. Empire Gas & Fuel Co.'s No. 8, SE cor. NW, Section 6-22-10 had sand at 2,216-46 feet and made 350 bbls. after a shot of 140 quarts. Hazlett and others' No. 19, NE cor. NW SE, Section 12-22-10, had sand at 2,052-2,125 feet, and made 600 bbls. after being shot with 200 quarts. Manhattan Oil Co.'s No. 4-A, NE cor. NW NE, Section 12-22-10 is good for 100 bbls. after a shot of 100 quarts in sand at 2,030-57 feet. Empire Gas & Fuel Co.'s No. 8, SE cor. NE SW, Section 11-22-11, had sand at 1,816-1,914 feet and made 170 bbls. after a shot of 140 quarts. Mid-Continent Petroleum Corp.'s No. 10, NE cor. SW SW, Section 18-22-11 is good for 65 bbls. on the pump from sand at 2,046-71 feet. York State Oil Co.'s No. 9, C SE NW, Section 33-22-11 had sand at 1,940-2,013 feet and made 60 bbls. after a shot of 100 quarts. Empire Gas & Fuel Co.'s No. 3, SW cor. SE, Section 4-22-12, had sand at 1,806-27 feet, and was plugged back to 1,822 feet, was shot with 60 quarts and made 125 bbls. Simmons and others' No. 6, NE cor. SE NW, Section 4-22-12, had sand at 1,870-1,911 feet and made 150 bbls. after a shot of 200 quarts. No. 3, SW cor. NE, Section 4-22-12, had sand at 1,823-67 feet and made 140 bbls. after a shot of 120 quarts. Pure Oil Co.'s No. 4, SE cor. SE, Section 8-23-11 made 75 bbls. the first 24 hours after a shot of 200 quarts in sand at 1,919-2,010 feet. O. J. Connell and others have a dry hole at 2,070 feet in No. 1, NW cor. NE NE, Section 10-23-11. Darby and others' No. 1, NE cor. NE, Section 17-23-11 had sand at 1,930-2,024 feet and was shot with 250 quarts. It made 110 bbls. oil and 19 bbls. water. Haverhill Petroleum Co.'s No. 10, CNL NE, Section 9-23-13 is

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Southwest Texas Hopes for New Field

Associated-Carson Well in Carolina Texas Gas District Most Talked of in That Area. Drilling Campaign Planned

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., July 12.—No. 2 "A" Webster, of the Tide Water-Associated and Usher Carson, in the Carolina-Texas Gas Field, in Webb County, that came in an oil well at 2,609 feet on June 30, and gauged 40 bbls. an hour, increasing to 60 bbls. an hour on Friday, dropped a little on Saturday and was making at the rate of about 200 bbls. a day on Monday and continued to decline a little during the early part of the week while the gas increased. The well is making through a ⅜-inch choker into steel storage with the expectation and promise that the Humble would have a pipeline completed and ready to operate by the first of this week. Of course, it is only speculation as to what the well will do if opened up. It might make more oil and might make less. Some of the wells in the Cole gas field that started to go to gas after making oil later came back and made more oil than ever. The Associated-Carson well is only 10 miles from them. Gravity of the oil from the well increased slightly, due probably to its making more gas.

Associated early last week began erecting a derrick for its No. 2 which is a 300-foot offset to the west, the company having been given a five-acre strip off the north end of the Townsend 20 acres to the west in consideration of its drilling the well. This well has now been spudded in and Al Buchanan, contractor, is assembling material 300 feet north of the discovery well to drill an offset for The Texas Company. Each company has also made other locations. Magnolia, as reported last week, got the Goodwin lease of 15 acres which corners to the northwest the lease the discovery well is on and has started erecting derrick and moving in rig for a diagonal offset to the northwest.

The Townsend lease of 15 acres, to the west and providing a diagonal offset to the southwest from the discovery well, was owned by E. R. Thomas of San Antonio and Mrs. Townsend of Laredo. The Townsend interests were bought by William F. Morgan, J. J. O'Hern and Wilkins Seacord, all of Laredo, and location has been made for a diagonal offset southwest from the discovery well on this lease.

The 10-acre tract an eighth of a mile north of the discovery well reported in The Oil and Gas Journal last week as having been purchased by the Simms Oil Co., was bought by C. O. Maddox of the Simms Oil Co. personally for $12,000. Three 10-acre tracts lying immediately west of it and all in Survey 684 are to be drilled by interests associated with the Morgans. O. W. Killam had the second location west of Maddox, having purchased it before the Associated well came in for $18,000. It had a gas well on it completed and producing. William F. Morgan owned the 10 acres next west of it and in the northwest corner of Survey 684 and Morgan, J. J. O'Hern and Wilkins Seacord bought the 10 acres between Maddox on the east and Killam on the west from the Poor Boy Oil Co. Morgan Brothers began the first of last week to assemble derrick material on the Killam block, having made a deal for a well. The location is in the southeast corner of the 10-acre tract and nearest to the Associated-Carson well.

High Gravity Well

Associated-Carson's No. 2 "A" Webster, in spite of the fact that the production began to drop off some, is the most talked of well in southwest Texas. The Humble's No. 4 Walsh on the Piedras Pintas salt dome in Duval County, which came in on December 20 making high gravity oil at a depth of 3,623 feet, was the deepest producer in southwest Texas at that time and the first big high gravity well, and outside of Somerset and Lytton Springs the only high gravity oil. Luling and all of Mirando is low gravity. Associated-Carson's well at 2,600 feet is high gravity and no explanation is needed to show the importance and significance. The No. 5 Barnsley of the Carolina-Texas Oil & Gas Trust about a mile to the northwest and No. 1 Benavides of the same company less than a mile west of the Associated-Carson well, are each 3,000 feet deep and are making wet gas carrying about .41 of a gallon of gasoline per 1,000 feet of gas. If the Associated-Carson well on the eastern edge of the 2,600-foot sand which is making gas in wells to the north and northwest produces high gravity oil it is considered there is a good likelihood that the 3,000-foot sand below the 2,000-foot sand above may each carry oil and that high gravity. Chances of a new field are so good that a drilling campaign is assured with plenty of wildcat tests.

Wolcott Oil Co. has erected a derrick in the northwest corner of the southwest 40 acres out of the southeast quarter of the southwest quarter of Survey 680, which is three-quarters of a mile to the northeast of the Associated-Carson well. United States Gas & Oil has a well standing at 2,100 feet shut down for lack of water in the northwest corner of Survey 679 on a direct line between the Wolcott derrick and the Associated-Carson well, a half mile from the latter and a quarter of a mile from the former. J. H. Winch is drilling at 1,600 feet in Block 12 of Survey 336 a mile due north of the Associated-Carson well. Houston Gulf Gas Co. on Buock 9 of Survey 268 at 2,004 feet brought in its first gas well in the field making 18,000,000 feet. It is a quarter of a mile northwest of the discovery gas well of the Carolina-Texas and 2 miles northwest of the Associated-Carson well. It has the derrick up and is drilling on another test in the southwest corner of Block 15 of Survey 268, less than a half mile northwest of the Associated-Carson well. Daniels & Best (Poor Boy Oil Co.) were drilling at 1,200 feet in No. 1 Webster on the 10-acre block bought by Morgan, O'Hern & Seacord.

Johnson & DeTray's well in the northeast corner of Survey 1,012, a little over 1½ miles due west from the Associated-Carson well which has been running wild as a gasser since early in February and was estimated at times to be wasting as much as 1000,000,000 feet of gas a day, choked up and went dead on July 2, just two days after the Associated-Carson well came in. The total depth of the Johnson & DeTray well was 2,710 feet. There was considerable open hole and the well was making a big volume of hot salt water with the gas. Associated-Carson's well was 2,609 feet. Whether it went dead due to the Associated-Carson well is speculative.

Mirando Production

Production in the Mirando district at this time is running close to 15,000 bbls. per day, pipeline run from wells. A few weeks ago on the eve of the development of the Bruni tract extension of the Aviator Field and the development of the Randado Field, both of which started at the same time, the pipeline runs from wells in the various Mirando pools was just under 8,000 bbls. per day. The old pools are holding up well but in addition the new Bruni tract extension of the Aviator Pool is making 5,000 bbls., approximately, and the Randado Field approximately 3,000 bbls. This was the figure at about the middle of last week. Several wells have come in since and the production from the Mirando district can be counted upon to increase rather than decrease. At about the time when the development started in the Bruni tracts and the Randado Field, Kitselman & St. Albans discovered a new producing oil spot northeast of the Henne, Winch & Fariss Field. They have completed eight oil wells and M. E. Weber has completed three. Kitselman & St. Albans are now completing a power pumping plant and their wells will go on production and will put about 1,000 bbls. into the Humble pipeline. The Bruni tract development has but barely got well started and many more wells can and will be drilled during the next six months and the Randado Field promises considerable further development and extension.

Bruni Tracts in Webb

The Edgington-Niles well in the southwest corner of Block 65 of the Edgington subdivision of the Puig Brothers ranch, reported last week as dry was a mistake. It is a 25-bbl. well and hence is not a mark fixing the line of production. It may be a hard spot causing it to be a smaller well than some but it proves up quite a little additional acreage. Columbia Petroleum is starting to drill its No. 11 in the northeast corner of Block 77 which is east of the Edgington-Nile well 1,600 feet and if it makes a well will prove up all of the Columbia Petroleum Co. block of 120 acres. Columbia has completed seven wells along its south line located about 300 feet apart and beginning with No. 1 in the southwest corner of Block 75 and has locations for Nos. 8, 9 and 10 on east from No. 7, which was the last completed, and swabbed 560 bbls. the first day. Associated Oil Co., which got a little oil at around 1,700 feet in its No. 1 in the northeast corner of the south half of Block 44 of the Bruni tracts which would have extended the field had it made a well, drilled the hole to 2,210 feet and has abandoned it there. It is rigging up on No. 2 on the same tract, 600 feet west of No. 1 and will try again. There is considerable drilling in the field but these outside wells on the rim of production are the most interesting and for the time being seem the most important.

Murchison & Fain in the southeast quarter of Block 13 are drilling at 600 feet in No. 2 Bruni located 150 feet from the north and west lines of its lease. Ball has set casing at 1,743 feet in the northeast quarter of Block 13 in the southwest corner of his lease offsetting the Murchison & Fain well. Ball's No. 4 Bruni, 410 feet north of No. 3, is drilling at 1,430 feet. Crown Central's No. 2 "B" Bruni in Block 16 has erected derrick. Crown Central-Rydal's No. 1 Bruni set casing at 1,723 feet, total depth 1,735, and it swabbed 125 bbls. It is in the northwest corner of the west half of Block 43. No. 12 is drilling at 300 feet 468 feet south of No. 11. No. 13, located 150 feet from the south and east lines of Block 17, has erected derrick. No. 14 is drilling at 1,260 feet. No. 15 has erected a derrick 468 feet south of No. 9 which is in the northeast corner of the west half of Block 43. Crown Central-Staley & Wynne No. 6 "A" Bruni in Block 14 is drilling at 1,200 feet. No. 7 "A" Bruni has erected derrick in the northeast quarter of Block 14, 978 feet from the north line and 150 feet from the east line. No. 3 "B" Bruni is drilling at 1,619 feet in the northeast corner of the southeast quarter of Block 14. National Refining Co. has made location for No. 2 Bruni 150 feet from the north line and 1,170 feet from the east line of the east half of Block 43, and location

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NIGGER CREEK DISCOVERY DWARFS OTHER EAST CENTRAL TEXAS EVENTS

MEXIA, Texas, June 10.—The sensational strike of the Transcontinental Oil Co. in the Nigger Creek area, 5 miles west and a little south of the city of Mexia and 3 miles west and a little south of the west side of the Mexia field, the story of which is told elsewhere in The Oil and Gas Journal, took all the attention away from other East Central Texas fields. The fact that most of the acreage near enough to the well to be any good, was all snapped up long ago and is in the hands of large operators who are not in the habit of selling leases, robbed the new discovery of much of the interest the avarage local oil man would have had in it, but the fact that a possible major pool was uncovered at a time when the industry is rocking along without the need of it, made it the subject of general conversation, if nothing else.

In that other important wildcat area, Cherokee County, none of the tests are yet deep enough to make any of them interesting, as the hoped-for pay in that region is below 4,200 feet. The Humble Oil & Refining Co.'s No. 1 Earle Ragsdale is drilling below 2,500 feet; the Humphreys Corp.'s No. 2 Owsley, Dillard survey is below 2,980 feet; same company's No. 2 Clapp is being deepened at 3,660 feet, corrected depth; and its No. 1 Boling, Walter survey, set 12½-inch casing at 181 feet. The Magnolia Petroleum Co. has made a location for No. 1 Summers on the Brewer survey.

In Ellis County, the Simms Oil Co.'s No. 1 Griffiths, De la Pena survey, was side tracking at 2,665 feet. The Magnolia Petroleum Co. was drilling a sand at 1,900-60 feet, with water in the last 2 feet, in No. 1 Getzendanner, Mayfield survey.

In Falls County the Gulf Production Co. is rigged up to drill No. Bargainer, Pierson survey.

In Grimes County the Newblock Oil Co.'s No. 1 Freund, O'Connor survey, is regarded a failure at 2,846 feet.

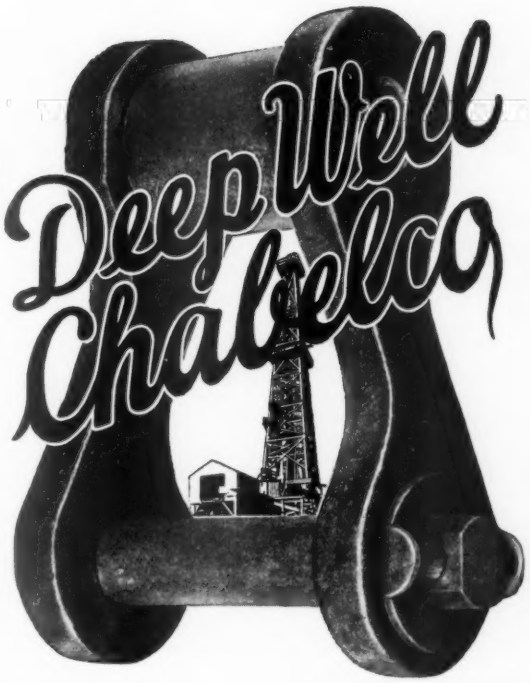
In Limestone County, where the big news of the week broke forth, there was little of consequence outside of the Transcontinental Oil Co.'s big well on the Rossen farm, Varela survey. Eisenmayer and others' No. 2 Baker, Sawyer survey, was abandoned at 1,871 feet. J. K. Hughes' No. 18 Ellis, Varela survey, was pumping 50 bbls. a day at a total depth of 3,078 feet. The Pure Oil Co.'s No. 2 Stockston, Capp survey, set 6⅝-inch casing at 3,151 feet and had standard tools in to complete it, total depth 3,180 feet.

In Milam County Allen & Harper's No. 1 Brown, Marshall survey, was drilling at 1,936 feet. The Texas Company's No. 1 Esperson, Lunde survey was drilling at 1,235 feet.

In Navarro County Osborne and others' No. 1 Mitchell was drilling in hard chalk at 2,388 feet. Garland Kent's No. 2K Woolens was drilling at 300 feet. Simms Oil Co. was drilling below 600 feet in No. 16 Rose, Harris survey.

Have You Seen

The New Deep Well Chabelco



Never in the history of rotary drilling have so many startling improvements been made in oil well chain as are built into Rex Deep Well Chabelco 1030 D.W. 3 and 1240 D.W. 4.

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Have you seen the ground pins and bushings that give a smooth-wearing surface accurate to 1-1000 of an inch; have you noticed the tighter all around fit that makes the link, assembled by the slow, smooth stroke of pressure-recording assembly machines, a more rigid unit; have you looked over the new Rex Pin Lock that gives these chains every advantage of both riveted and cottered pins without the disadvantages of either?

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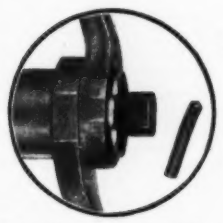
The Rex Pinlock That Ends a Problem as Old as Rotary Drilling

The lock consists of the lock disc and a special spring pin

In assembly the lock disc is seated on the pin



Next the pin is put in place

Then the lock disc ear is hammered up with any handy tool

The cotter pin is one of the oldest of mechanical devices. It is also one of the crudest. It does not stand up to oil field work.

To overcome this objection to the cotter, riveted chain was often used.

But that made it extremely tough to take out a link, take down the chain or assemble it in the field—

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Louisiana-Arkansas Output on Decline

Operators See Little Encouragement for New Production from Wildcats Now Drilling. Pulling on Storage

By James H. Dameron
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., July 12.—Daily average production figures and wildcat test reports were two things operators in the Louisiana - Arkansas district watched with varied interest during the week. Production is slipping and little encouragement for new pools was gleaned from news when the Louisiana Oil & Refining Corp., principal buyer of Urania crude, announced a 10-cent boost for oil in that field effective June 16. The raise brings the price of Urania crude up to $1.25.

Wildcatting on the flexure brought another test into the limelight when Bradley & Cozart's No. 1 Holmes, Section 16-9-1e, cored 6 feet of sand at 1,540-46 feet. Casing was set on sandy shale 2½ feet further up the hole. Tunica Petroleum Co.'s No. 1, Section 20-9-1e, had a small show of oil in salt water sand at 1,665½-69 feet. Wildcatting in Arkansas was equally disappointing. Three rank wildcats were chalked up as failures.

Lisbon in Arkansas finished a dull week. All of the new wells in that new area were small producers and all save one well were drilling on inside acreage. The other was an edge well. The Smackover extension area came back for recognition with one deep sand well making around 250 bbls. of pipeline oil on the pump. It was Hunt's No. 3 in Section 28-16-16.

Two Wells Near Tullos

Urania's best wells of the week were drilled around the townsite of Tullos. Two wells were finished in that immediate territory flowing 250 bbls. daily. About 2 miles northwest of production in the north end of Urania, Spencer & Rhodes' No. 1 Urania, Section 1-10-1e, is reported to be coming in as a gas well, at around 1,400 feet. If the well is completed as a gasser it will be the first since the blowouts of 1924 in Urania.

The Texas Company's No. 42 C. M. L. Co., Section 23-21-15, held the interest of Caddo Parish operators. The deep test showed salt water with a light show of oil at 3,675 feet after having passed up the big gas higher up the hole. The well is being deepened for oil production and if none is found it will be plugged back and completed as a gasser. Saturday morning the bit was grinding through black lime at 3,687 feet.

Field Operations About Same

Field operations in both states varied little when compared to the previous week's report. Forty completions were recorded, 33 wells are waiting for standard rigs, 264 tests are drilling, 41 are rigged and ready to start, 67 derricks are up and 23 locations were carried. Completions fell 19 short of last week's report but rigs increased 16.

Smackover crude is much in demand and much trading has been reported in crude from that field. Simms Oil Co. is dealing extensively in Smackover. Last week Simms sold the Louisiana Oil & Refining Corp. 600,000 bbls. of Smackover and a few days later bought a big batch from Southern Crude Oil Purchasing Co.

Simms is leading in Smackover crude trades both in buying and selling. At the first of the month that company had around 1,200,000 bbls. of pipeline oil in storage in Smackover with about 460,000 bbls. in steel storage and the remainder equally divided in earthen and field storage.

Heavy drafts were made on Smackover storage during June and it was reduced more than 1,250,000 bbls. On the first of the month there was better than 26,000,000 bbls. in storage there. More than 5,500,000 represented the total pipeline movements of Smackover crude during the 30-day period.

Production Shows Drop

The combined production of both of the states took another tumble in daily average production when it fell off almost 4,000 bbls. Louisiana suffered the greatest losses when its production dropped off 2,700 bbls. daily. The big loss came from Urania which went off about 2,000 bbls. Urania's loss was charged, principally, to the decline in her big wells. All other fields in the state contributed to the slide save De Soto and Red River which gained slightly.

In Arkansas, both the Smackover heavy and light oil fields declined due to the natural decline in old wells. Lisbon, where little new production was reported during the week, was able to show a slight gain. Several old wells worked over in El Dorado were put back on the beam and that field's production took a healthy climb. Nevada and Stephens each lost a few barrels.

Production by Fields

Louisiana	
Bellevue	2,320
Caddo light	10,040
Caddo heavy	2,700
Cotton Valley	7,875
De Soto and Red River	3,880
Elm Grove	615
Haynesville	9,810
Homer	5,630
Urania	14,700
Total	57,570
Arkansas	
Smackover heavy	124,650
Smackover light	16,005
El Dorado	9,135
Lisbon	10,350
Nevada	2,220
Stephens	1,770
Total	164,130
Total both states	221,700
Total last week	225,595
Difference	3,835

Arkansas

Lisbon was the quiet sector in Arkansas last week and its eight new wells gave the field 249 bbls. of new production. The most interesting of the completions was Lion Oil & Refining Co.'s No. 8-A Mitchell, Section 17-17-16, on the west side, which was completed in 35 feet of sand topped at 2,135 feet, flowing 50 bbls. through 2-inch tubing. The remaining Lisbon completions were routine and small producers. Gulf's No. 1 Primm, Section 21-17-16, is a 45-bbl. pumper at 2,144-74 feet. Atlantic's No. 7-B Andress, Section 16-17-16, was good for 15 bbls. on the pump at 2,121 feet and No. 1-B Slaughter, Section 3-17-16, is making 44 bbls. on the pump from sand at 2,095-2,122 feet. Allday Drilling Co.'s No. 3 Murphy, Section 4-17-16, is pumping 15 bbls. from 2,150 feet. Rovenger Oil Corp.'s No. 3-B Goodwin, Section 16-17-16, is flowing 45 bbls. through 2-inch tubing from 2,144-75 feet. Pure Oil Co.'s No. 2-N Harrell, Section 4-17-16, was credited a 20-bbl. pumper at 2,112-41 feet and Pure's No. 1-N Harrell, same lease, is making 15 bbls. on the pump from sand at 2,121-60 feet.

Northeast of Lisbon Ackerley and associates' No. 1 Murphy, Section 1-17-16, is a rig. Atlantic's No. 1 Ford, Section 3-17-16, is drilling at 1,300 feet. On the Atlantic's Goodwin lease, Section 16-17-16, No. 2 is drilling at 1,724 feet; 6-inch was cemented at 2,108 feet at No. 5 and Nos. 6 and 7 are derricks. Eason and associates' No. 1 Mooty, Section 22-17-16, has 400 feet of oil in the hole from sand at 2,120-39 feet and is waiting for a standard rig. Gulf Refining Co. has rigs up for No. 2 Primm, 1,120 feet south and east NW cor. Section 21-17-16, and for No. 3 Primm, NW cor. Section 21. Six and five-eighths inch casing was cemented at 2,120 feet at Humble's No. 4 Goodwin, Section 16-17-16, and at 2,104 feet at No. 8 Goodwin. A rig is up for H. L. Hunt's No. 6 H. O. Murphy, SE cor. NE NE, Section 4-17-16. Imperial Oil & Gas Co.'s No. 3 Primm, Section 21-17-16, is a rig. Six-inch was cemented at 2,054 feet at Keisker and associates' No. 2 Harrell, Section 15-17-16. Lion Oil & Refining Co.'s No. 2-A Dumas, Section 10-17-16, was dry in broken sand at 2,070 to 2,100 feet. The hole was deepened 10 feet and is standing with 400 feet of fluid in it, 50 per cent salt water. A rig is up for Lion's No. 5-A Mitchell, NE SE NE, Section 17-17-16. Six-inch casing was cemented at 2,118 feet at No. 12-A and a derrick is up for No. 1-B, NE cor. SE SE. Six-inch casing was cemented at 2,123 feet at No. 1-C Mitchell, same section, and No. C-2, SW cor. SE SE, is a derrick.

Surface casing was set at 198 feet at Magnolia's No. 1 Halsey, Section 20-17-16. On the Magnolia's Harrell lease, Section 4-17-16, No. 3 and No. 4 are waiting on standard rigs; 6-inch was cemented at 2,076 feet at No. 6 and a derrick is being built for No. 7. C E line NE SE. Six-inch was cemented at 2,073 feet at Magnolia's No. 1 Slaughter, Sec-8-17-16. A derrick is up for J. L. Meek's No. 1 Milner, SW cor. NW SE, Section 15-17-16. On the Natural Gas & Fuel Corp.'s Willett lease, Section 4-17-16, No. 4 is waiting for a standard rig; 6-inch was cemented at 2,086 feet in No. 5 and at 2,058 feet at No. 7 and No. 6 is drilling at 1,950 feet. Ohio Oil Co.'s No. 5 Goodwin, Section 21-17-16, is waiting for power. No. 6 is drilling at 2,000 feet and No. 7 is a rig. Reynolds & Marr's No. 1 Goodwin, Section 21-17-16, has 500 feet of oil in the hole from 40 feet of broken sand topped at 2,123 feet and is waiting for a standard rig. Rovenger Oil Corp.'s No. 6 Goodwin, Section 16-17-16, is drilling at 750 feet and 6-inch was cemented at 2,060 feet at No. 7. Roxana Petroleum Corp.'s No. 1 Willett, Section 3-17-16, is drilling at 1,260 feet. Wingfield and associates' No. 2-B Slaughter, Section 3-17-16, is waiting on a standard rig with 1,000 feet of oil in the hole from sand at 2,089 to 2,114 feet and a derrick is up for No. 3-B CWL NW SW.

Smackover Area

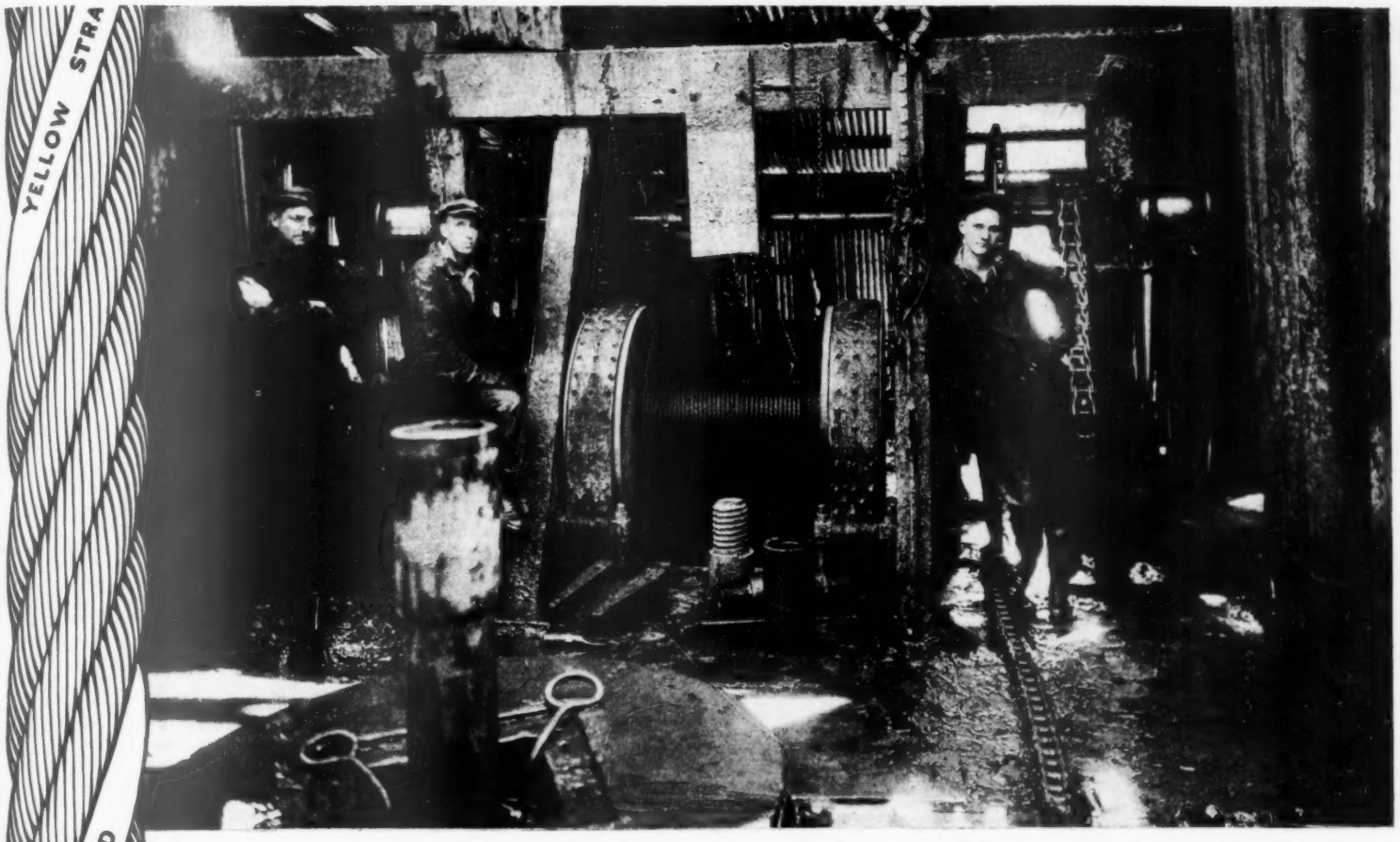
In the Smackover area the big noise was around the area extended several weeks ago by H. L. Hunt. His No. 3 Swilley' Section 28-16-16, took 3 feet of sand topped at 2,671 feet and is making 240 bbls. oil on the beam. The well is the best completed in that newly opened territory and made operators there more optimistic since the water encroachment on wells previously completed had clouded that area. Offsetting the Hunt well, A. H. Ramage's No. 1 fee, Section 27-16-16, was finished at 2,673-76 feet pumping 250 bbls. but 60 per cent of it was water. In the Kenova district Moco Oil Corp.'s operations were abandoned on the Flenniken lease in Section 5-16-15. No. 5 was junked at 2,542 feet and derricks for No. 7, No. 9 and No. 11 were abandoned. Broderick & Calvert's No. 5-B Murphy, Section 8-16-15, was junked at 2,020 feet. The test was drilled to 2,657 feet and tested salt water. In the Norphlet area Simms Oil Co.'s No. 3 Murphy, Section 15-16-15, was completed in sand at 2,601-08 feet making 120 bbls. naturally. South of Wesson and southwest of the El Dorado Field Jones & Murphy's wildcat, No. 1 McDonald, Section 27-19-16, was abandoned in red gumbo at 3,012 feet.

Amerada Petroleum Corp.'s No. 7 Callowat, Section 4-16-15, tested dry at 2,363 feet and is being deepened. A derrick is up for Belmont and associates' No. 1 Hollie, SW cor. NW NE, Section 13-18-15. F. A. Book's No. 1-A McDonald, Section 1-16-16, tested dry with a show of salt water and oil at 2,575 feet and is shut down for orders. Six-inch casing was cemented at 2,218 feet at Dyer Brothers' No. 4-A Stout Lumber Co., Section 31-15-16, and is being bailed to test 7 feet of sand topped at 2,242 feet. Arrangements are being made to deepen Federal Petroleum Co.'s No. 7 Ballard, Section 10-16-15, completed at 2,645 feet last June flowing 8,000 bbls. 75 per cent salt water and b.s. Grimes & Jones's No. 1 Prothro, Section 3-18-15, is drilling at 225 feet. Arrangements are being made to deepen Gulf's No. 29 Hardy Murphy, Section 4-16-15, completed last June at 2,370 feet pumping 75 bbls. Gulf's No. 21 T. C. Murphy, Section 9-16-15, has 1,200 feet of fluid, 50 per cent salt water, in the hole from sand at 2,434 feet and is fishing for the bailer. A rig is up for No. 22 T. C. Murphy, 1,520 feet south, 660 feet west NE cor.

Tested 35,000,000 Feet of Gas

Hollifield & McFarland's No. 10 Giller, Section 11-16-15, tested 35,000,000 feet of gas with a spray of salt water at 2,687-88 feet. Humble's No. 6-B Flenniken, Section 9-16-15, is being bailed to test 2 feet of sand topped at 2,248 feet. Humble's No. 2-B Lawton, Section 7-16-15, tested salt water at 2,751 feet and is coring at 2,753 feet. H. L. Hunt's No. 4 Swilley, Section 28-16-16, is drilling at 2,542 feet. Six-inch casing was set at 2,588 feet on top of a packer at Imperial's No. 1 Goodwin, Section 26-17-16, and the test showed salt water at 2,592 feet. Casing is being reset. Four feet of sand was cored at 2,651-55 feet at E. M. Jones' No. 1 Foster, Section 19-16-16, and casing is being cemented at 2,646 feet. The Wilcox sand was topped at 550 feet at Kampeter and associates' No. 1 Townes, Section 34-19-11, and the test is drilling ahead at 620 feet. Lion Oil & Refining Co.'s No. 10 Graves, Section 3-16-15, is being deepened from 2,359 feet. Efforts are being made to get returns at 2,422 feet at Lion's No. 1-H Murphy, Section 9-16-15. Magna Producing Co.'s No. 5 Tatum, Section 7-16-15, is waiting for a standard rig at 2,023 feet and No. 6 is a rig. Magnolia's No. 2 Childs, Section 8-16-16, is drilling at 1,175 feet. Murdock and associates' No. 8 Hays, Section 4-16-15, is waiting for a standard rig at 2,375 feet and No. 7 Vestal, Section 17-16-15, tested salt water at 2,760 feet and is shut down for orders. Ohio Oil Co.'s No. 3 Ballard, Section 14-16-15, is drilling at 2,462 feet. Peer Oil Co.'s No. 6 Palmer, Section 9-16-15, is drilling at 2,595 feet. A. H. Ramage's No. 6-C Lawton, Section 10-16-15, is waiting for a standard rig at 2,609 feet and No. 7-C is being bailed to test 7 feet of sand topped at 2,403 feet.

Sam Richardson's No. 2-M Murphy, Section 14-16-15, is drilling at 2,128 feet. Simms Oil Co.'s No. 1 Simmons, Section 9-18-13, is a rig. Skelly Oil Co.'s No. 3 Hall, Section 9-16-16, is drilling at 2,418 feet. Southern Crude Oil Purchasing Co.'s No. 1 Rumph, Section 8-16-16, is coring at 2,596 feet. Six-inch casing was cemented at 2,597 feet at Southern's No. 4-A Wells, Section 15-16-15. Standard Oil Co. set casing on hard sand at 2,545 feet at No. 11 McClanahan, Section 6-16-15, and the casing is being bailed. A rig is up for Standard's No. 4 Reynolds, NE cor. S half SE NW, Section 6-18-15. Stewart and associates' No. 5 Murphy, Section 9-16-15, is drilling at 2,110 feet. Sun Oil Co.'s No. 9 Brown, Section 8-18-15, is drilling at 3,086 feet. Sunny Jim Oil Co.'s No. 7 Lawton, Section 10-16-15, cored salt water sand at 2,741-43 feet and are cementing back to 2,050 feet. Sure Oil Co.'s No. 5 Murphy, Section 15-16-15, is coring at 2,635 feet. The Texas



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Company's No. 1 Hays, Section 4-16-15, is bailing to test at 2,036 feet and its No. 4 Saxon, Section 4-16-16, is drilling at 575 feet. Surface casing was set at 132 feet at Walber and associates' No. 2 Cordell, Section 6-18-13. Williams and associates' No. 3 Goodwin, Section 16-16-14, cored salt water sand at 2,413-44 feet. Wingfield and associates' No. 1 Gallagher, Section 10-17-17, is coring at 2,075 feet, corrected depth.

Ouachita County

Magnolia Petroleum Co.'s No. 3 Watson, Section 31-15-19, Stephens Field, was finished in sand at 2,193 to 2,203 feet and is pumping 25 bbls. daily. In Smackover, Sun Oil Co.'s No. 6 Hardin, Section 27-15-16, is pumping 15 bbls. daily from sand at 2,250 feet. Gulf Refining Co.'s No. 19-A Umsted, Section 33-15-15, is drilling at 1,950 feet, and No. 20-A is drilling at 390 feet. H. M. Harrell's No. 3 Moline Timber, Section 9-12-17, is coring at 1,212 feet. Humble is fishing for 4½-inch casing at 2,788 feet at No. 11-B Arnold, Section 26-15-16. Imperial Oil & Gas Co.'s No. 4 McClanahan, Section 6-16-15, is pumping salt water from sand at 2,275-77 feet. Casing was recemented at 2,582 feet at Magna Producing Co.'s No. 4-B Rhoten, Section 32-15-15. A. Meek's No. 1 Clawson, Section 35-15-17, has 400 feet of oil in the hole from sand at 2,295-2,303 feet and is waiting for a standard rig. Ohio is testing 31 feet of broken sand topped at 1,973 feet at No. 14 Mullens, Section 27-15-16.

Junk is being sidetracked at 2,512 feet at Phillips Petroleum Co.'s No. 5 Johnson, Section 34-15-15. Phillips' No. 1 Tate, Section 9-14-17, is being reamed to 3,111 feet to set 8-inch casing. J. D. Reynolds' No. 1 Howell, Section 15-14-18, is drilling at 500 feet, and No. 2 Ratch & Cartier, Section 36-13-18, topped the Nacatoch at 1,455 feet and is drilling at 1,460 feet. Six-inch was cemented at 2,627 feet at Roxana's No. 6 Berg, Section 28-15-15. Standard Oil Co.'s No. 10 Murphy, Section 29-15-15, is drilling at 1,345 feet. The Texas Company's No. 17 Berry, Section 33-15-16, is drilling at 2,353 feet. In the Stephens district, Arco Oil Co.'s No. 1 Davis, Section 22-15-19, is drilling in shale at 1,400 feet. A rig is up for Louisiana Oil & Refining Corp.'s No. 1 Culp, SW cor. SE NE, Section 22-15-19. Louisiana's No. 2 Green, Section 22-15-19, is waiting for a standard rig at 1,458 feet and a rig is up in the C NW, Section 30-15-19, for Louisiana's No. 1 Jones. A derrick is up for Magnolia's No. 4 Watson, SE cor. NW SW, Section 31-15-19. Reynolds and associates' No. 1-A Davis, Section 22-15-19, is waiting for a standard rig at 2,176 feet.

Columbia County

H. W. Aarnes' No. 2 Brown, Section 13-15-20, is drilling in brown shale at 3,398 feet. The plug at 2,180 feet is being drilled out at Gorden and associates' No. 4 Jones, Section 1-16-20, and a derrick is up for No. 5 Jones, NE cor. Section 1.

Nevada County

A gasser and a pumper were added to Nevada County's producing roster last week. Autrey Oil Co.'s No. 3 Womack, Section 10-14-21, is pumping 60 bbls. from 1,138-45 feet. Webb and associates' No. 1 Haynie, Section 1-14-21, is making 20,000,000 feet of dry gas from 1,121-37 feet. The well had been killed and drilled deeper but finding no oil the operators bailed it back in. Six-inch casing was cemented at 1,210 feet at Autrey's No. 6 Womack, Section 10-14-21. Furen and associates' No. 1 Groves, Section 2-14-21, is drilling in gumbo at 1,101 feet. Humble is fishing for a rotary slip at 2,406 feet at No. 4 Bodcap, Section 9-15-22.

Scattered Wildcats

Three of Arkansas' rank wildcats went on the monumental list last week. In Ashley County Rhodes & Kirker's No. 1 Bledsoe, Section 20-15-7, was abandoned at 2,554 feet. In Bradley County Magnolia's No. 1 Arkansas, Section 33-15-11, is drilling at 320 feet. McMurry and associates' No. 1 Southern, Section 7-15-11, is rigging. In Calhoun County, Genther and associates' No. 1 Freeman, Section 24-15-15, was abandoned at 2,907 feet. Southern Crude Oil Purchasing Co.'s No. 1 Calion, is drilling at 2,702 feet. Wheelen Oil Co.'s No. 1 Brown, Section 35-10-20, Clark County, tested dry at 2,307 feet. In Cleveland County Haley and associates' No. 1 Moore, Section 29-9-10, was abandoned at 2,650 feet. A rig is being moved in for Kingsland Oil Co.'s No. 1 Hall, Section 31-10-10.

McClintock & Goodka are sidetracking junk at 2,395 feet at No. 1 Ogle, Section 35-13-5, Drew County. Eight-inch casing was cemented at 1,115 feet at Frank S. Myers' No. 2 Nichlos, Section 17-11-25, Hempstead County. In Lafayette County, Arkansas Fuel Oil Co.'s No. 4 Allen, Section 18-19-24, is drilling in shale at 1,200 feet and No. 4 Red River, same section, is drilling in shale at 3,271 feet. Gulf Refining Co.'s No. 1 Red River, Section 10-19-24, is drilling in blue gumbo at 2,186. The Texas Company's No. 1 Colvin, Section 14-17-24, is drilling at 1,072 feet. In Little River County Greason and associates' No. 1 Waldrop, Section 4-13-31, is drilling at 1,066 feet and Mellick Oil Co.'s No. 1 Hawkins, Section 10-11-31, is drilling at 1,765 feet.

Louisiana—LaSalle Parish

Urania's new wells brought in almost 1,000 bbls. of new production during the last week and operators there centered their attention around the town of Tullos where the two best wells were completed. H. L. Hunt's No. 11 Tullos Heirs, Section 26-10-1e, is flowing 250 bbls. daily from sand at 1,488 to 1,500 feet. In the "thousand-barrel" territory Cleve Love and associates' No. 5 Zimmerman, Section 25-10-1e, is flowing 250 bbls. daily from sand at 1,510-14 feet. Natural Gas & Fuel Corp. finished four last week. No. 5-E Urania, Section 18-10-2e, was good for a 25-bbl. pumper at 1,511-20 feet; No. 6-E, same section, was a 40-bbl. pumper at 1,508-13 feet; No. 1-K, same section, was finished for a 10-bbl. pumper at 1,546-49 feet, and No. 2-F Urania, Section 24-10-1e, is flowing 125 bbls. from sand at 1,552-56 feet. Beckman & Freeman's No. 1-B Urania, Section 7-10-2e, is flowing 25 bbls. from 1,516-20 feet. Hunt McCurry & Zoder's No. 2 Urania, Section 7-10-2e, is pumping 100 bbls. from 1,509-18 feet. Dixie Oil Co.'s No. 7 Urania, Section 24-10-1e, was a duster at 1,560 feet and was abandoned. H. M. Jones abandoned the derrick for No. 3 Russell, Section 25-10-1e.

Abercrombie & Co.'s No. 2 King, Section 25-10-1e, is drilling at 100 feet. Six-inch was cemented at 1,509 feet at Arizola Petroleum Co.'s No. 9 Tannehill, Section 36-10-1e. A derrick is up for Beckman & Freeman's No. 2-B Urania, SW cor. SE NE, Section 7-10-2e. Six-inch casing was cemented at 1,475 feet at O. W. Clark's No. 4 Tullos, Section 23-10-1e. A rig is up for Gibbons and associates' No. 1 Urania, SW cor. NE, Section 20-10-2e. The plug at 1,535 feet is being drilled out at Hamilton and associates' No. 1 Wright, Section 26-10-1e. Hope Oil Co.'s No. 2 Urania, Section 19-10-2e, is coring at 1,556 feet. The swab was lost in 7 feet of sand topped at 1,512 feet at A. E. Hudson's No. 4 Urania, Section 7-10-2e. Humble Oil & Refining Co. has made location for No. 2-A Louisiana Central, 1,320 feet north and west SE corner Section 22-11-3e. Hunt and associates' No. 1 Urania, Section 2-9-1e, is drilling at 85 feet. Six-inch casing was cemented at 1,513 feet at Hunt McCurry & Zoder's No. 3 Urania, Section 7-10-2e, and the plug at 1,502 feet is being drilled out at No. 4. Henry Jones' No. 1 Taylor, Section 23-9-1e, cored dry brown sand at 1,470 feet. Six-inch was cemented at 1,510 feet at Louisiana's No. 9-A Tremont, Section 35-10-1e. Surface casing was set at 105 feet at Louisiana's No. 6-B Tremont, NW cor. NE NE, Section 25-10-1e.

On the Louisiana's Tremont lease in Section 25-10-1e, No. 33-B is waiting for casing to set at 1,461 feet and No. 34-B is drilling at 700 feet. McGahay and associates' No. 1 Russell, NW cor. NE NE, Section 7-10-2e, is a rig. W. T. Murray's No. 2 Doughty, Section 36-10-1e, is being bailed to test 4 feet of sand topped at 1,508 feet. Natural Gas & Fuel Corp.'s No. 3-F Urania, SE cor. NE SE, Section 24-10-1e, corrected location, is drilling at 95 feet. Same company's No. 1-H, Section 18-10-2e, is drilling at 1,470 feet and No. 2-H is drilling at 1,200 feet. No. 2-K and No. 3-K, same section, are waiting for standard rigs. A derrick is up for Natural's No. 1-M Urania, NE NE SE, Section 19-10-2e. Spencer & Rhodes have spudded in on No. 1 Urania, SE cor. Section 1-10-1e. Tunica Petroleum Co.'s No. 3 L. & A., Section 19-9-2e, is being cored at 1,746 feet. A rig is up for George W. Wetherbee's No. 3 Norrid, SW cor. SW SW, Section 2-9-1e. Six-inch casing was cemented at 1,490 feet at O. F. Whittaker's No. 5 King, Section 36-10-1e.

Bossier Parish

Autrey Oil Co.'s No. 4 Connell, Section 15-19-11, is drilling at 381 feet. A rig is up for Louisiana Oil & Refining Corp.'s No. 12-B fee, 492 feet north and 848 feet west SE cor. SW, Section 11-19-11. Eight-inch casing was cemented at 975 feet at Palmer Corp.'s No. 1 Elston, Section 20-16-11. The Texas Company's No. 1 Moon, Section 13-19-11, is drilling in shale at 480 feet. Woodley & Collins are moving in a rig for No. 1 Antrim, Section 4-21-11. Same operators' No. 1 L. & A. Oil Co., Section 14-23-12, has 7 feet of sand topped at 3,102 feet and a short string of 4½-inch casing is being cemented at 3,102 feet.

Caddo Parish

Aside from deep sand tests in Pine Island little was recorded in Caddo Parish. Gulf's No. 238 Ferry Lake, Section 21-20-16, was finished at 2,275 feet for a 12-bbl. pumper, and No. 242 in Section 15 is making 15,000,000 feet of gas spraying a little salt water from 2,280 feet. Henderson and associates' No. 1 Caldwell, Section 29-22-15, was abandoned at 1,860 feet. Tholl Oil Co.'s No. 9 Huckaby, Section 14-21-15, was finished up at 1,600 feet for a 60-bbl. pumper.

W. D. Chew's No. 1-A Caddo L. B., Section 9-20-16, tested salt water at 1,895 feet and is shut down for orders. Six-inch casing was cemented at 1,800 feet at Chew's No. 4 State, Section 34-21-16. Dixie Oil Co.'s No. 1 Jolly, Section 27-22-15, is drilling in shale and shells at 4,130 feet. Ten-inch casing collapsed at 851 feet at Dixie's No. 77 Robertshaw, Section 14-21-15, and the test is being reamed to the bottom at 1,650 feet. Galloway and associates' No. 1 Burglass, Section 15-21-16, is being plugged back to 2,215 feet. Gulf Refining Co.'s No. 1 Byrd, Section 2-19-14, is drilling in hard gray lime at 2,850 feet with a showing of oil. Gulf's No. 242 Ferry Lake, Section 16-20-16, is waiting for casing to set at 2,150 feet and 6-inch is being cemented at 2,146 feet at No. 243. A derrick is up for No. 250 Ferry Lake, 300 feet north and east SW cor. Section 29-20-16, and locations have been made for No. 251 Ferry Lake, 1,620 feet north and 1,620 feet east SW cor., and No. 252, 300 feet north and east SW cor., both in Section 15-20-16. Gulf's No. 1-E Muslow, Section 35-21-15, is drilling in red shale and lime at 4,179 feet.

Magnolia Petroleum Co.'s No. 1 Spell, Section 29-21-15, is drilling in lime at 3,205 feet and Magnolia's No. 1 Bradford, Section 24-21-15, is coring lime at 3,649 feet. Six-inch casing was cemented at 1,442 feet at McGoldrich and associates' No. 9 Murray, Section 14-21-15. Morris Drilling Co.'s No. 1 fee, Section 1-20-16, is drilling at 800 feet. Jones & Murphy's No. 1 Youree-Randolph, Section 13-20-15, tested salt water with a show of gas at 2,291 feet and arrangements are being made to abandon. Owl Oil Co.'s No. 1 Bryson, Section 9-17-16, is drilling at 70 feet and No. 2 is a rig. Page & Caldwell's No. 1 Hobbs, Section 29-21-15, is being swabbed to test at 2,250 feet. Ramsey and associates' No. 1 Muslow, Section 32-21-15, tested a show of oil at 1,475 feet and penetrating the sand a few feet more. Six-inch casing was cemented at 1,040 feet at Standish Oil & Refining Co.'s No. 7 Allen, Section 23-22-15. Location has been made for The Texas Company's No. 1-B Caddo L. B., 1,980 feet south and 660 feet east NW cor. Section 22-15-12. The Texas Company's No. 42 C. M. L Co., Section 23-21-15, is swabbing salt water with a slight show of oil at 3,675 feet. A derrick is up for The Texas Company's No. 58 S. P. Harrell, 820 feet south and 710 feet east NW cor. Section 4-21-16. Lo-

(Continued on Page 105)

WILDCAT PLAY IS LOOKED FOR FROM MALJAMAR TO BIG LAKE

By Special Correspondent

ARTESIA, N. Mex., July 9.—A large wildcat play is looked for in western Texas and eastern New Mexico during the coming year most of the activity being in a triangular section with Amarillo at the northern point, Big Lake at the southern and Artesia at the western. At present the majority of the leasing is being done in a southeasterly direction from the Maljamar Pool and toward Big Lake but during the past two weeks a number of drilling blocks have been taken south of the Amarillo Field and in the direction of the Len County wildcat. The making of a well by the Maljamar Corp. has greatly influenced the wildcatters who, however, are not merely obtaining large blocks of acreage for a well but are selecting their leases on the advice of geologists as much as possible.

To the north of the Maljamar the Humble Oil & Refining Co. has obtained a good block consisting of Section 10-12-13-14-15-21-22-23 and 27 in Township 14, Range 33. The Humble, the Ohio and The Texas Company are the most active of the major companies in the eastern part of this State. The Ohio is the first company to get into the Maljamar block and is now moving in tools for wells on the William Mitchell permit in Section 18-17-32 and on the Pearl Miller permit in Section 35-17-32. To the west of the Ohio the Skelly interests have No. 1 in Section 22-17-31 down 600 feet.

The Maljamar has been shut down for the past week for the installation of a steam engine and boilers, to replace the gasoline engine with which the hole was drilled. The gas has been cased off and bradenheaded and will probably be tubed back into the hole unless the well again starts flowing natural. A gauge taken showed 500 pounds rock pressure in four minutes. It is believed this pressure will be around 800 pounds on a full test. Considerable interest is now being shown in the Wooley-Jones No. 1 Beeson in Section 33-17-30, due to having picked up the red sand at a depth of 2,482 feet. The red sand is the only true marker in this area and from correlations made by a number of geologists it was figured to lie between 2,450 to 2,500 feet in the Wooley test. The making of a well will stimulate drilling to the east of the Artesia Pool. The Ohio Oil Co. has purchased the Braunlin permit just south of the well, being Section 3-4-9-10 in Township 18, Range 30. A contract was also closed with one of the largest contractors in the field to take the hole over and carry it to 3,500 feet if necessary.

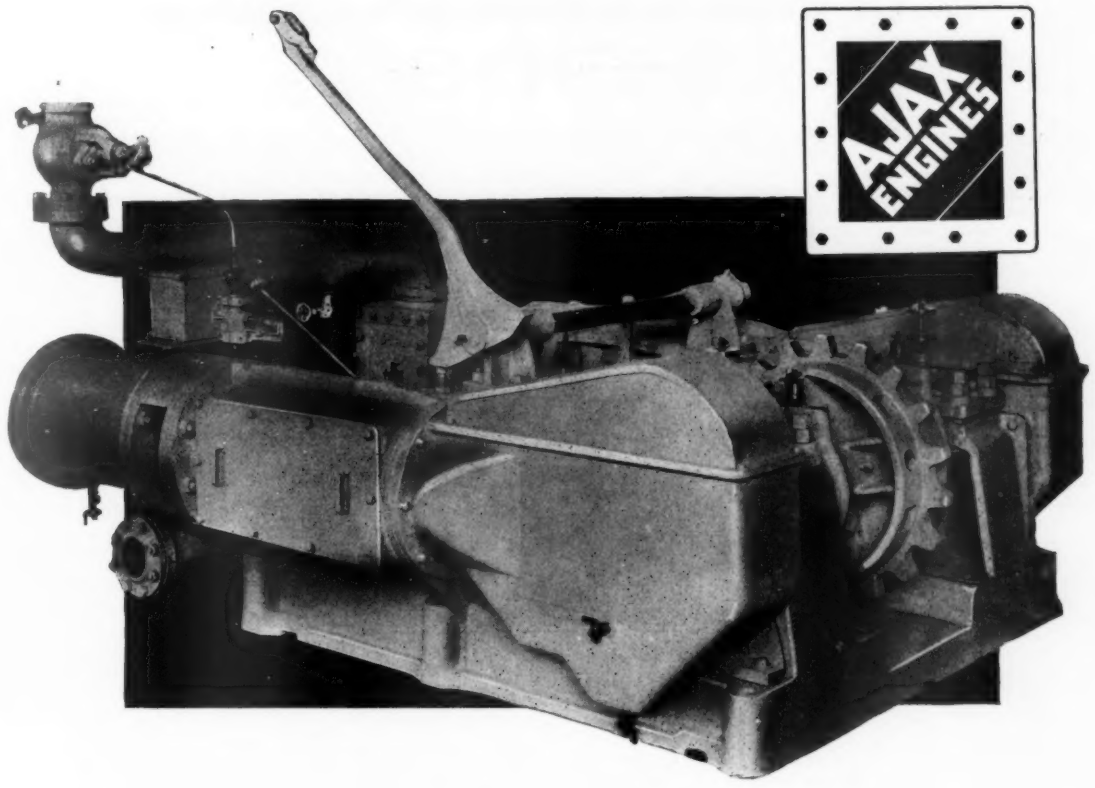
In the Artesia Pool Flynn-Welch & Yates have a good well in their No. 48 in Section 21-18-28, which is producing at the rate of 75 bbls. daily from 20 feet of sand. The Empire is preparing to shoot its well on the west side which picked up a sand at 1,595 feet.

Eddy County

Colorado Drilling Co.'s No. 1 Irvin in Section 8-16-27, fishing; Dave Compton's No. 2 Mann permit, Section 3-18-27, drilling 1,700 feet; Cook-Ironsides' No. 1, Section 10-20-20, drilling at 1,390 feet; Decum Development Co.'s No. 1 Vandagriff permit, Section 5-17-28, drilling below 2,250 feet; Empire Gas & Fuel Co.'s No. 1 Russell permit in Section 35-17-27, waiting orders to shoot; Flynn-

(Continued on Page 105)

Smooth Operation



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Salt Creek Field Hard Hit By Storm

Union Oil Co. of California Gets 700-Bbl. Well in Ft. Collins, Col. Wildcats Planned North and West of Sunburst

By Frank B. Taylor
Staff Correspondent, Rocky Mountain Area

CASPER, Wyo., July 10.—The past week has been one of the worst in the experience of the oil men in Wyoming for many years. The weather has ruined roads, floods have torn out pipelines and bridges and electrical storms have set fire to tankage and burned rigs in the fields.

Salt Creek Field was the hardest hit. At present the field is practically isolated; trucks are trying to drive through the deep mud with chains and double chains on all four wheels; the railroad has stopped service completely with several bridges out, and the Bell and Midwest telephone lines are out of commission. The Illinois Pipe Line Co.'s telephone line is still working and so is the Producers & Refiners line so that some communication can be had.

Lightning struck a full 55,000-bbl. tank at the Teapot pump station, half way between Salt Creek and Casper and set the tank on fire. About 6,000 bbls. of oil were saved by the pumps before the crude got so hot the pumps had to be shut down. The rest of the crude was lost. This tank boiled over and set off a second 55,000-bbl. tank and the total loss is expected to amount to $250,000 in this fire.

In the field proper, trouble at the big electrical plant of the Midwest Refining Co. shut down the whole field operation of the Midwest for a time. The railroad bridge near the center of the field went out in the flood waters and the piles and debris lodging against the highway bridges farther down the creek, these bridges also went out. Gathering lines throughout the field were torn out and broken by the flood, shutting down many wells until repairs can be made. Water rose in the main pumping station and shut down the work there, putting the pumps on the trunk lines out of commission.

The buses were the last to quit. After the bridges went out near the home camp of the Midwest, the bus line announced that service would be suspended until further notice, tourists were turned back at Casper and no cars except those of officials and workers were permitted to pass the Casper end of the Salt Creek highway. Men whose duty called them to the field managed to get within a few miles of the field and then walked the rest of the way. The pavement that reaches within 12 miles of the field paid big dividends during the bad weather.

While this region is considered arid and much of the land is desert, the present year has had as much rainfall as any part of the country. This last rainfall showed a precipitation of 1½ inches in two hours. Wyoming is subject to cloudbursts during the spring and early summer, but this year the condition has been general.

So far the trunk pipelines that serve the fields have suffered very slightly according to reports. Men are out patrolling these lines looking for damage but no bad breaks have been reported. The field forces and the Casper officials of the Midwest Refining Co. deserve credit for quick organizing of relief forces by which the damage was kept to a minimum and the field will be working at normal in a few days. The Ohio Oil Co. was also in the field with a large force. Lease lines were ignored and everybody worked as a unit.

Good Colorado Well

The Union Oil Co. of California brought in the Gault-Piatt No. 2 in the Fort Collins Field, on Section 7-9-68, and the sand was found at 4,440 feet. The well is making 700 bbls. and looks like a good producer.

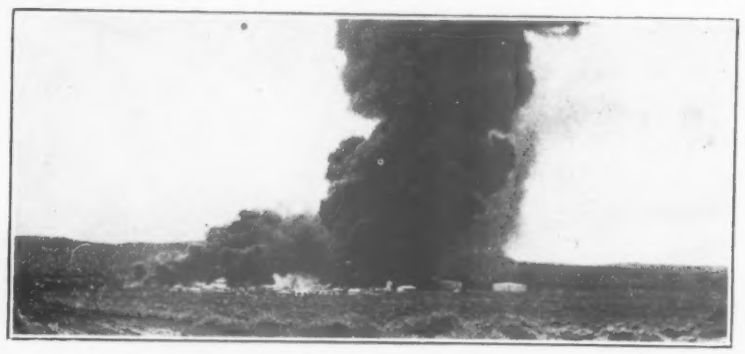
The Bubbles Lake well of the Union Oil Co. should also find the sand shortly and its completion is looked for within two weeks.

The Texas Company has put out the fire at the well on the Rangeley Dome on the west slope, in Colorado, and the well is now shut in and under control. On the Tow Creek Dome, The Texas Company is finding a better producer in its second well than the first discovery hole. The second well found a pay in the shale and the well was estimated at 300 bbls. However, it has steadily increased production until at present it is making 450 bbls. daily instead of 300. The Tow Creek Dome is in Routt County. The Texas Company has a third well spudding at Tow Creek.

The Continental Oil Co. brought in a good producer on Section 4-20-69, in the Florence Field. This well found the pay at 1,550 feet in the shale and is making about 50 bbls.

The new refinery at Craig, Moffat County, being built by The Texas Company, is pouring concrete for foundations of stills and for the walls and floors of boiler rooms and other buildings. The plant will start with a battery of four stills.

The pipeline from Fort Collins to Cheyenne to carry gas from the field to the Wyoming capital is about finished. It is expected gas will be delivered into the Cheyenne mains about July 15. This is a 6-inch line with welded joints. It was laid by the Cities Service Co.



Two tanks of Midwest Refining Co. burning between Salt Creek and Casper.

The Midwest Refining Co. is not satisfied with the last deep test at Iles Dome, Moffat County, and is preparing to put down another deep well there. The new hole will be located on the axis of the structure and north of the wells now producing.

Salt Creek Completions

Only five completions were reported from the Salt Creek Field the past week by the Midwest Refining Co. and affiliated firms. The Wyoming Associated found a producer good for 180 bbls. on Section 14-40-79 and on Section 35-40-79, completed a producer good for 34 bbls. at 1,205 feet. On Section 23-40-79, the Wyoming Associated has a small pumper at 1,435 feet and the Widwest Oil Co. and the Wyoming Associated drilled a joint well on Section 12-40-79 that will make a small producer at 2,410 feet.

The Midwest Oil Co. completed a well to the top of the Lakota sand on Section 27-40-79, which made 216 bbls. from the shale and upper sands.

At the Wind River Agency, at Fort Washakie, a meeting of the chiefs of the Shoshone and Arapahoes, renewed a lease on the Pilot Butte Field to the Argo Oil Co. and also several other wildcat tracts on the Shoshone Indian reservation to other parties. The meeting was held June 30 and was attended by five chiefs from the Shoshone tribe and five from the Arapahoe tribe and was presided over by Supt. R. P. Haas of the Indian Agency at Fort Washakie.

The Producers & Refiners drilling in the Hudson Field near Lander found a producer good for 200 bbls. in the Tensleep sand about 2,800 feet. The Hudson Field has some 20 shallow producers of black oil and about eight deep wells, also black oil producers. The shallow wells are about 1,000 feet and the deep holes range about 2,800 feet. The crude is shipped by rail to Casper and then through the Producers & Refiners pipeline to Parco to be refined.

In spite of the Argo Oil Co. finding a duster in the deep well drilled at Pilot Butte recently, a syndicate has secured a part of the Dora Enos tract in that operation and proposes to drill a deep well that will make a test of the Dakota, Morrison and Sundance sands. This means that the well will be drilled about 5,000 feet and will test the sands below the Dakota formation, which is the deepest so far found in the wells drilled.

Operations in Montana

Three wildcats are announced by local companies and syndicates in and around Shelby as being ready to drill north and west of the Sunburst Field in an effort to find new production in that direction. Two more wildcats are located on the east side of the field in the same hope. On Section 1-35-5, a syndicate composed of Idaho capital is starting a welll and the location is about 15 miles northwest of production. The Red Top Oil Co. is starting drilling on Section 23-36-3 and this location is considered to lie off the Sunburst Field structure altogether. If production is found it would mean a separate field from Sunburst.

The Shields Valley Oil Co. is expected to reach the Ellis sand at its location about 8 miles west of the field and as this test is located well down the slope of the structure, it is considered there is a possible chance of finding oil instead of water.

The Minot Shelby Holding Co.'s well drilling near Devon, east of Shelby, is expected to reach the Ellis horizon the coming week and its completion is awaited with interest.

During the past week, Sunburst Field brought in eight new wells but only six were producers, with two dry. The Homestake Oil Co. on Section 36-35-2 found a duster and the Postlewait Syndicate test on the east side of the field also came in a dry hole.

Practically all the producing wells brought in the past week were located

(Continued on Page 121)

SEVEN TESTS IN TURNER VALLEY NOW DRILLING BELOW 3,000 FEET

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ont., July 10. — In the Turner Valley Field, southwest of Calgary, seven tests are now drilling below the 3,000-foot level. Of these, three, the McLeod No. 2, the Illinois-Alberta and the Dalhousie No. 1, are definitely in the top of the Madison limestone in which formation Royalite No. 4 secured its heavy production A survey of the field shows 14 other wells actively drilling or working on casing, in addition to a number of new tests rigging up.

McLeod Oil Co.'s No. 2, LSD 16, Section 1-20-3w5, has finished putting in a new cable and is drilling around 3,700 feet, with 1,000 feet of water in the hole to hold down the gas pressure. The pressure is increasing and several barrels of crude naphtha have been skimmed from the water.

Dalhousie Oil Co.'s No. 1, LSD 4, Section 18 20-2w5, is drilling through 150 feet of cement at the bottom of the 6-inch casing, the casing having been cemented above the limestone. Dalhousie No. 3, LSD 10, Section 13-20 3w5, is fishing for the 6-inch casing which parted at 3,000 feet. The hole is down 3,345 feet. Dalhousie No. 5, LSD 16, Section 30-19-2w5, is drilling for 20-inch casing at 110 feet. The stovepipe casing was set at 70 feet, but on account of caving, another joint had to be set off at 85 feet in the shale.

Vulcan Oils' No. 1, LSD 11, Section 13-20-3w5, has a fishing job at 4,890 feet. Illinois-Alberta Oil & Refining Co., LSD 14, Section 12-20 3w5, has finished cementing the 4¾-inch casing in the limestone at 3,662 feet, and is drilling through the 17 feet of cement into the limestone.

Royalite Oil Co.'s No. 5, LSD 13, Section 7-20-2w5, is down 3,307 feet and drilling. Royalite No. 6, LSD 16, Section 31-19-2w5, is at 2,872 feet and working on 12½-inch casing.

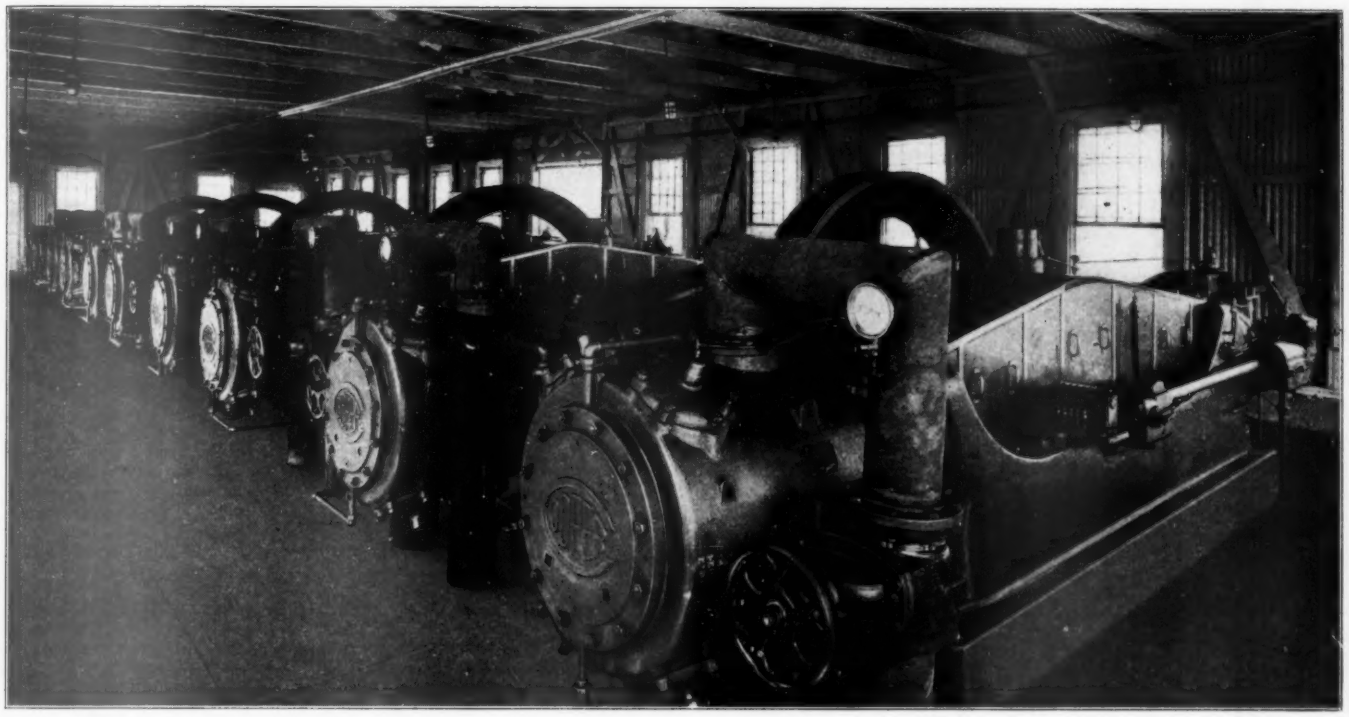
Has Casing Trouble

Dallas Oil Co.'s No. 1, LSD 11, Section 20 19-2w5, has been held up through casing trouble. The 12½-inch was damaged at the bottom when the crown block was pulled off the derrick, and a swedge had to be used to straighten the pipe. Drilling resumed at 1,800 feet and is now below 1,810 feet. The test will drill open hole with a 12-inch bit for the 10-inch casing as far as possible. New McDougall-Segur No. 1, LSD 14, Section 12-20-3w5, has resumed at 129 feet after cementing the 20-inch casing.

Great West Oil Co.'s No. 1, southeast quarter of Section 7-20-2w5, is at 2,300

(Continued on Page 107)

More Evidence Favoring COOPERS



Above is another line of Cooper Type-80 gas engines in a gasoline plant in the Davenport, Oklahoma, field. This installation was recently put into operation by one of the very largest oil companies in the country. The same company has since installed another station with Cooper engines in Texas.

There can be but one explanation of why so many of the largest companies swing to Cooper engines—by comparison they find them to be generally more satisfactory and they prefer to do business with an old organization which has built a reputation for assuming full responsibility for its product.

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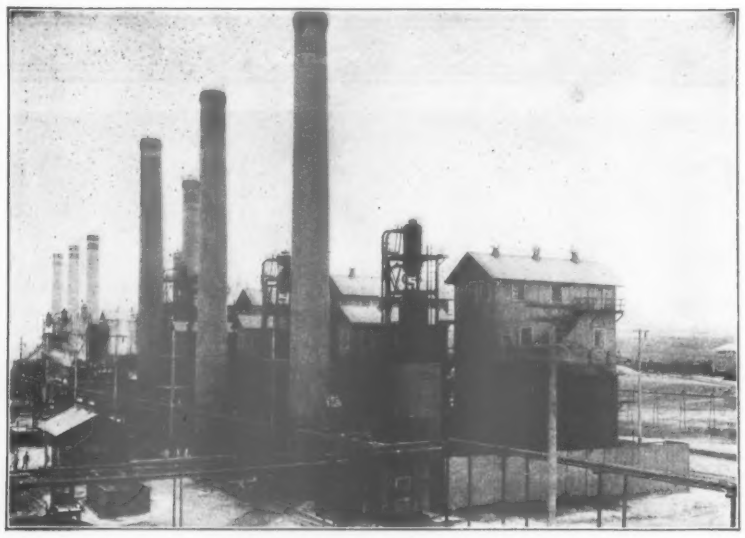

Holmes-Manley Installation at Casper, Wyo., Plant of The Texas Company.

This installation (as well as all other Holmes-Manley installations of The Texas Company) is now producing direct, naphtha which is treated with Doctor solution to a finished gasoline.

The tests of the naphtha and finished gasoline are approximately as follows:

	Tests of Naphtha Before Treating	Tests of Finished Gasoline After Treating
Gravity Baume	61.9	61.5
Corrosion (Copper Strip)	—	good
Color (Saybolt)	23	25
A. S. T. M. Distillation:		
I. B. P.	86	88
20%	184	184
50%	265	262
90%	355	357
End Point	396	396

Yields first 4 months when making above gasoline:

Oil Run:	Percent.
Virgin Gas Oil	63.90
Cycle Gas Oil	36.10
Total	100.00

Finished Yields:	Percent. Basis Total Charge	Percent. Basis Virgin Charge
Gasoline (as above)	43.90	69.61
Cycle Gas Oil	36.94	—
Cycle Fuel Oil	15.52	24.61
Gas	2.95	4.69
Coke	0.72	1.14
	100.03	100.05
Less Gain	0.03	0.05
Total	100.00	100.00

The Holmes-Manley *Cracking* Process

The Market Value of gasoline from this process is sufficiently in excess of the value of gasoline produced by other processes to more than pay the royalty we ask

The Licensee receives:—

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Long Beach Deep Zone Yields Big Wells

One Completion Doing Better Than 2,250 Bbls. While Another Is Making 1,180 Bbls. Interest in Wildcatting

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., July 10.—With but one exception, all of the wells finished at Long Beach during the past week were completed in the deep zone. The best well finished, which was, by the way, one of the largest yet completed in the northwest extension, was M. L. Boles' No. 1 Cerritos, which staged a short gas blowout some 10 days ago. It will be recalled that the enormous pressure at that time blew off the christmas tree and literally deluged surrounding property with oil and water before the flow was killed. Mr. Boles, who was at one time superintendent of the Coalinga-Mohawk Oil Co., immediately repaired the rig and completed the well by running in a 4½-inch liner and landed it on bottom at 4,813 feet. Upon being turned loose the well continued to show the heavy gas pressure which was responsible for the premature blowout and it is at the present time doing better than 2,250 bbls. daily. Flowing through a ¾-inch bean under a pressure of 920 pounds, the well tanked 2,200 bbls. of unusually clean 22.8 gravity oil during the initial 24 hours.

Geologists explain the unusually high production of the well by its location on the upper shoulder of the terrace, which is one of the distinguishing characteristics of the Los Cerritos structure. It is not far from the Kohlbush & Johnson well, which came in under a big production a few months ago, and it is believed that most of the wells in the immediate neighborhood will show a rather high production upon completion, at least until such time as nearby offsets begin drawing on the same source of supply with a consequent reduction of gas pressure.

Another Good Completion

No. 5 Cerritos of the Repetto Hills Oil Co. was also an excellent completion and would, under ordinary conditions, have topped the usual list of new wells. This well, which was recompleted after being redrilled and deepened from the upper to the lower horizon at 4,713 feet, came in flowing 1,180 bbls. of fairly clean 22.3 gravity oil. The Ring Petroleum also finished a splendid well when No. 1 Grant Cerritos was turned loose from 4,820 feet after being deepened from the upper sand. The wisdom of the officers in deciding to deepen this well is shown by the fact that it was transformed from a small pumper in the upper zone to a flowing well making 960 bbls. of 21.9 gravity oil daily.

C. B. Colby and Bud Gerner were forced to content themselves with small production, but inasmuch as each well is cutting approximately 20 per cent, there is some possibility of the output building up after the wells have cleaned themselves out. Colby's No. 1 Cerritos, a new well, is flowing 125 bbls. daily from 4,805 feet while Gerner's No. 1 Cerritos, a redrill, is doing 320 bbls. from 4,830 feet. The McKeon Oil Co. increased its list of producers by bringing in No. 8 Cerritos flowing 381 bbls. of 22.2 gravity oil from 4,840 feet. The completion of this well gives the company a daily production of approximately 1,700 bbls.

The Rio Grande Oil Co. has taken over the Retsof Drilling Co.'s No. 81 Cerritos and will immediately start redrilling and deepening it to the deep zone. The California Petroleum logged a gray sand at 7,203 feet in No. 1 Bixby, a northeast outpost, and, in view of the fact that no showings of importance have been picked up to date, it would not be at all surprising if the well was listed for abandonment in the near future. The A. T. Jergins Trust has just listed No. 18 Municipal for completion at 3,153 feet but the output was somewhat disappointing. This well, which is located in the older section of the field and pumping 262 bbls. of clean 24.1 gravity oil, will probably be followed into completion by No. 19 Municipal within the next week or ten days, as the latter is at the present time standing cemented at 3,042 feet.

Huntington Beach

Those interested in development work in the Huntington Beach Field are watching the Wilshire's drilling project in the southwest extension very closely because of the fact that it will throw considerable light on the potentiality of this area recently thrown open for development. The Wilshire has refused to release any information on this well and, although a high board fence has been erected around the rig, a drill pipe count places the depth at approximately 3,050 feet. The company landed a string of casing somewhere around 3,000 feet a week or ten days ago and the well, upon being drilled out, began heaving rotary mud, occasionally shooting it up into the derrick. A string of tubing was immediately run in and, although the hole has been swabbed for the greater part of three or four days, it has failed to respond and it is believed the company will resume drilling. The failure to develop production at this depth might, under ordinary conditions, be considered a bad break, but in this case it tends to confirm the opinion of several geologists that this is the upper zone and that commercial production can be anticipated when the deep sand is encountered.

Other Interesting Tests

The Superior's No. 2 Strong, also in this new area and located but a short distance from the Wilshire's test, is drilling ahead in a hard sandy shale at 2,516 feet, but still has about 500 feet to go before picking up the sand found by Wilshire. It looked as though the California Petroleum had picked up some showings in No. 1 Buck, a north line outpost at 4,200 feet, a few days ago but a core sample did not react to the ether test and it is believed that the few rainbows seen in the sluice box were due to oil being used in circulating. The negative core resulted in the immediate resumption of drilling and the bit is going ahead in a sandy shale at 4,255 feet. The Standard has just logged a slight showing of oil in No. 23 Bolsa Chica at 6,060 feet and this hole will be watched very closely during the next week or ten days. This company had drilled a considerable number of deep holes at Huntington and may, perhaps, some day open up a deeper horizon.

Inglewood

The Associated, after spending several months of hard work with No. 2 Vickers, a deep zone well in the Inglewood Field, has suspended operations indefinitely and it is not believed that any further deep drilling will be undertaken, at least for the time being. Before shutting in this well, which has been plugged back from 3,210 feet to 2,884 feet, the company put it on a 20-hour production test. During this period the well flowed approximately 600 bbls. of 19.6 gravity oil but the output continued to show a cut of 20 per cent, as it has done since the original test. The Standard listed a recompletion during the early part of the week when No. 7 on Los Angeles Lease No. 1 was put on the pump after being cleaned out to bottom, 2,531 feet. The well is making 160 bbls. of 16.4 gravity oil on the beam.

Torrance

There were two new wells finished in the Torrance Field during the past seven-day period, both of them being small pumpers. The Chanslor-Canfield Midway Oil Co. finished another well on the Del Amo property, while the Shell added a new producer on its Redondo lease. The former's No. 62 Del Amo, finished at 3,550 feet, was good for 100 bbls. of 16.2 gravity while the latter's No. 15 Redondo is pumping 65 bbls. of 14.8 gravity oil from 3,600 feet. The Pan American spudded in No. 1 Chancorina at Rideout Heights during the early part of the week and, although the actual depth is not available, it is probably down around 500 feet.

H. H. Krohn, who has taken over the Calokla Oil Co.'s No. 1 in the Coyote Field, is preparing to resume work and will carry the hole down in search of deep production. The Standard has just staked a location for No. 4 Howard-Smith at Montebello and will, no doubt, have material on ground within the next few days. That the St. Helens will also increase its work in this area is evidenced by the fact that a rig is going up for No. 13 Monterey. The California Petroleum is experiencing considerable difficulty with sand in No. 11 Richfield Consolidated, a recent completion, and it may be necessary to re-enter and clean out the hole before satisfactory production can be maintained. The Chanslor-Canfield Midway Oil Co.'s No. 97 Olinda, a deep test in the Fullerton Field, is making satisfactory footage and the change from brown shale to sand at 7,474 feet was quite welcome.

Development work in the Ventura Avenue Field resulted in the completion of another new well during the current week and, judging by their status, several others should be on production within a comparatively short time. The new well finished was No. 21 Gosnell of the Shell, which showed an initial of 2,390 bbls. of 30.2 gravity oil from 5,856 feet. It is flowing quite steadily under a pressure of 490 pounds and will probably maintain its present output for another two weeks at least before settling. The Bolsa Chica is making preparations to bring in its No. 1 Hartman in the northern part of the field and the well will probably be tanking oil before the close of the current week. G. J. Magenheimer's well just north of the Bolsa Chica's No. 1 Hartman, is being delayed with mechanical trouble but should get under way within the next few days.

The McKeon Oil Co. has secured a lease on the Graham property about a half mile north of the Bolsa Chica's Hartman lease and, while the requirements stipulate early work, it is quite doubtful if any kind of a test will be drilled unless the Bolsa Chica's well nearer production is a large one. The Associated started work a week or ten days ago on a new water system made necessary because of increased drilling and, while it will not supplant the present water system, it will prove a much needed addition. The project involves the erection of tanks and a new pumping plant, together with the necessary pipelines. A large water tank is being erected on a high hill about a mile east of the field in order to increase the water pressure on the company's Lloyd and Hartman leases, located at a somewhat lower elevation.

Southern California Wildcats

Wildcatting is perhaps one of the most important phases of the industry in view of the fact that future operations are dependent to a large extent upon the discovery of new fields and the development of adequate crude oil and natural gas to meet the ever increasing demand. For this reason all producers and refiners are more or less interested in the drilling of tests in unproven areas and the sinking of extension wells in fields already productive. Operators have for a long time been watching wildcat operations in the Seal Beach area and they are quite divided in their opinion as to whether commercial production will eventually be developed in that district.

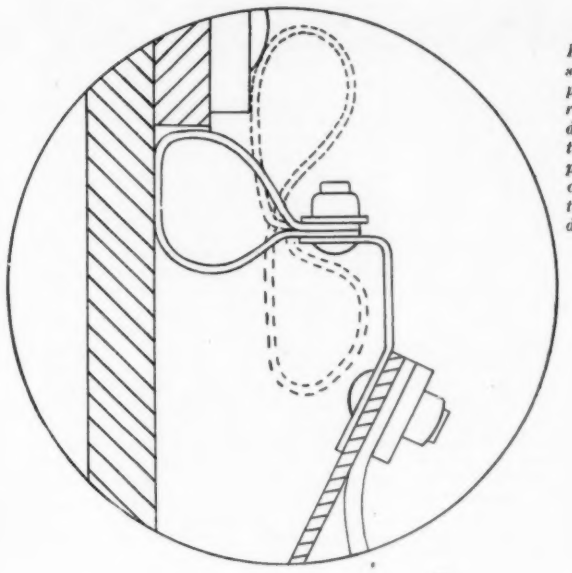
The Shell has concluded its work in that area and will for the time being leave the task to the Marland, Associated and Union. The Marland has already drilled one duster several hundred feet south of its present test, No. 2 Bixby, rotating ahead in a gray sand at 4,228 feet, but still hopes to develop commercial production. The Union's No. 1 Bryant, further north, is at present going ahead in a gray sand at 4,348 feet and, in view of the fact that one or two minor indications have already been logged, it might be well to watch this wildcat during the next several weeks. The Associated is still engaged in structure survey work, having drilled and abandoned three diamond core holes up to the present time. The company's initial endeavor in this area was a duster, No. 1 Hellman, abandoned around the 5,500-foot level.

Area Seems Favorable

It is rather peculiar that only a few operators have taken the trouble to follow the Union's No. 1 Howland, southwest of the Inglewood Field, in view of the fact that this is perhaps one of the most promising wildcats in the southern part of the state at the present time. It is true that nothing out of the ordinary

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total This week	Daily Average	Total Last week	Daily Average	This year To date	Same time Last year
Crude oil	226,676	32,382	93,402	13,343	6,724,122	8,706,336
Fuel and gas oil	148,546	21,221	150,113	21,444	4,827,777	237,873
Gasoline	74,046	10,578	144,170	20,595	3,501,383	3,773,090
Tops	.....	.....	.....	.....	74,619	327,185
Coastwise—						
Crude oil	498,708	71,244	145,921	20,846	12,512,556	16,032,603
Fuel and gas oil	147,605	21,086	276,921	39,560	4,858,429	6,138,922
Gasoline	279,898	39,985	22,876	3,268	3,839,104	2,285,209
Kerosene	.....	.....	.....	.....	166,870	239,763
Tops	.....	.....	.....	.....	480,544	85,986
Exports—						
Crude oil	76,762	10,966	65,409	9,344	2,637,598	1,251,376
Fuel and gas oil	357,986	51,141	153,467	21,924	8,483,808	7,884,403
Gasoline	291,057	41,580	.....	.....	2,820,537	2,128,007
Tops	.....	.....	.....	.....	.....	170,407
Kerosene	.....	.....	71,602	10,229	1,055,560	1,114,729
TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS						
Fuel and gas oil	.....	.....	.....	.....	584,771	160,308
Gasoline	.....	.....	.....	.....	592,094	642,672
Tops	.....	.....	.....	.....	229,775	624,175
Lubricants	.....	.....	.....	.....	217,147	235,533
Coastwise—						
Fuel and gas oil	64,003	9,143	117,698	16,814	2,565,735	1,870,039
Gasoline	151,877	21,697	123,245	17,606	2,243,278	1,313,345
Kerosene	9,956	1,422	6,194	885	212,049	124,079
Exports—						
Fuel and gas oil	156,394	22,342	.....	.....	1,685,574	1,040,799
Gasoline	65,129	9,304	.....	.....	798,090	384,387
Kerosen	59,614	8,516	134,696	19,242	1,197,292	591,125
Lubricants	.....	.....	.....	.....	.....	293,429



Enlarged crew of the secondary seal which protects the tall, narrow slot from windage disturbance. The dotted lines indicate its position when passing over shell joints, as the roof travels up and down.

Double Protection

against evaporation and fire

TANKS equipped with Wiggins Roof are doubly protected against evaporation and fire. A secondary seal of wire-woven asbestos covers the tall, narrow slot formed when the roof shoe travels over rivet heads and seams. The small oil surface beneath this slot is blanketed by heavy vapor, held above the oil by gravity. The secondary seal over the slot keeps close contact with the tank shell in whatever position the roof may be. By doing so it protects the vapor blanket from windage disturbance.

The main seal between the floating pan and roof shoe eliminates losses through evaporation, thermal breathing and splash-over.

The secondary seal makes closure over and protection to the oil surface complete.

Fire cannot reach the oil surface beneath a Wiggins Roof. The two fire-safe seals fully protect the contents of the tank.

Any of the offices listed below will quote you on Wiggins Roofs for your present tanks or on tanks and roofs complete.

CHICAGO BRIDGE & IRON WORKS
Chicago—2128 Old Colony Bldg.
New York—3147 Hudson Terminal Bldg.
Cleveland—2204 Union Trust Bldg.
Dallas—1641 Praetorian Bldg.
Atlanta—1054 Healey Bldg.
San Francisco—1054 Rialto Bldg.

The tall, narrow slot protected from the disturbance of wind currents by the secondary seal.

Gastight section of Wiggins Seal (1-6 natural size). Air accidentally pumped into a tank is trapped in this space and the entrained oil separated from it before the air passes through vents into atmosphere.

WIGGINS ROOF

OGJ7-15Gray

has been logged to date, except possibly some slight colors and a little gas, but the location is, nevertheless, a favorable one. The well was checked a few days ago at 3,045 feet, the formation at that time being a sand and shale. It will be recalled that the Sentinel Oil Co. drilled a wildcat about 2,000 feet away from the Union's No. 1 Howland and it was reported at the time that some favorable indications were noted. Mechanical trouble developed, however, and the absence of a satisfactory test makes the Union's present wildcat a very interesting one.

Work in the Manhattan-Hermosa Beach area during the past several weeks has not had the effect of stimulating interest in that vicinity, in fact the present status of the several wildcats has had a tendency to divert attention elsewhere. This is not surprising in view of the fact that Johnson's No. 1 Martin, the Manhattan Pacific's No. 1 Bardeen and the Julian Petroleum's No. 1 Trust are all in a r a t h e r unsatisfactory condition due to various causes. The Marland and Union are still working on their respective tests in the Newhall-Saugus area, the former's No. 1 Wickham being in a barren gray sand at 3,641 feet, while the latter's No. 1 Saugus is drilling ahead in a blue conglomerate at 3,163 feet.

The Standard sprung quite a surprise when it entered the San Fernando Valley a month or so ago, but it begins to look now as though the company merely led the way. The Petroleum Securities followed the Standard and as a result of the activity of these two concerns several more companies and individuals have gone into that section and taken extensive leases, some of course for protective purposes only. The Standard drilled several dusters a few years ago near the San Fernado Mission but later pulled out because of the unfavorable outlook. The company's re-entrance into this area is for this reason particularly interesting and, while its present test, No. 1 University at 2,552 feet, is some distance away, it indicates that the company is not entirely satisfied that the area around San Frenando is barren. The Petroleum Securities picked out several leases in the Reseda-Zelzah area and its wildcat at that point, No. 1 Sesnon, is being reamed at 445 feet, preparatory to landing a string of surface casing.

The Barnsdall reports a slight gas showing in No. 1 Merlo in the Puente sector at 2,400 feet and, although there have been no oil showings from the grass roots down to 2,460 feet, the present depth, the gas showing is, nevertheless, considered quite favorable and it would not be surprising if the company developed commercial production at this point. Although two oil showings were found several months ago in the Aubrey Austin water well in the Topango Canyon around the 200-foot level, the Standard has failed to pick up corresponding showings in its test nearby, notwithstanding the fact that 650 feet of hole has been made to date. The company will, of course, continue work until a conclusive test has been made, but the failure to even get a color is somewhat discouraging.

Northern California Wildcats

The area adjacent to the newly opened Poso Creek Field near Bakersfield in Kern County, continues to be the most active part of the state as far as leasing is concerned and it is quite probable that numerous shallow tests will be drilled in this vicinity during the next several months. Wildcatters are literally leasing and buying every bit of available land within a radius of 15 or 20 miles from the Shell's No. 1 Vedder, the discovery well at Poso Creek, in the hope that another shallow field may be opened up. The Chanslor-Canfield Midway Oil Co. recently purchased 440 acres in Section 31-27-29 and another 300 in Section 6-28-29, the property being originally held by Nash Valencia of Delano. The Shell also recently consummated a deal in the Famosa Poso Creek area involving a lease on 320 acres in Section 33-27-28 and 200 acres in Section 3-28-28. The property was secured from Mrs. L. H. Glide on a one-sixth royalty and a cash bonus of $160,000.

The only disconcerting feature in connection with the purchase and leasing of acreage in the Famosa Poso Creek district is the fact that in several cases the title to various properties is clouded and drilling may be held up pending court action. The latest development along this line is a suit filed in behalf of a number of Federal permit holders to quit title to thousands of acres in Kern County. The plaintiffs claim that title to many tracts was initiated by the original Spanish grants and the subsequent general leasing law of 1920 was an usurpation of authority by the Federal Government. It is believed that it will take several months to secure a preliminary decision from the general land office, during which time no work can be undertaken. The claims, however, are rather hazy and not at all likely to be long entertained in courts of competent jurisdiction. Many suits of this character have been filed during the last 20 years and almost invariably have been declared of no avail as a general principal of land title jurisprudence. In addition to the property held up because of the clouded titles there are several hundred acres more involved in controversies resulting from duplicate sales of identical acreage, due to the exercising of verbal options and agreements.

Fire at Refinery

Prompt work on the part of the Vernon and Los Angeles fire departments last night prevented the spread of a large blaze which destroyed the upper part of a bubble tower of the Marine Refining Co. at Vernon. The fire, which started in an unknown manner, gained considerable headway before the arrival of the apparatus. For a short while the flames, which were shooting high in the air, threatened to spread to nearby refineries. Every available fire company in Vernon and several from Los Angeles were summoned. After a two and a half hour battle, firemen got the blaze under control with the aid of Foamite tanks which were rushed to the scene by the General Petroleum Co. A. G. Starner, still man in charge of the bubble tower, was unable to estimate the damage last night. The tower, which is 60 feet high, is located near the center of the refinery district.

Enlarge Los Angeles Harbor

Plans and construction work now under way will further augment oil loading facilities at Los Angeles Harbor. There are nine separate loading wharves in the local harbor at the present time capable of handling 20 tankers simultaneously. The Union is constructing two more in the West Basin at a cost of several hundred thousand dollars, while the Western Refining Co. adjoining is soon to have a new berth and the Standard will add another through extensions both in the main channel and in the West Basin. The harbor commission this week instructed Harbor Engineer Nicholson to prepare plans and specifications for the latter, to cost approximately $72,000. The West Basin berth will be lengthened to accommodate two ships and the channel dock extended to relieve cramping when two ships tie there.

Twenty-five vessels with a capacity of 1,625,000 bbls. can come alongside simultaneously when the additions are completed. The General Petroleum has four berths, Nos. 238, 239, 240-A and 240-B, while the Union Oil has two, Nos. 150 and 151, and will have two more within a short time. The Shell is loading tankers at two berths, the California Petroleum at two, the Associated at three, the Pan American at two, Julian Petroleum at one, Standard at four and Richfield at two. In addition to the loading facilities of the various companies, the city maintains a loading dock for case oil.

RATTLESNAKE AND TABLE MESA PIPELINES ARE NOW IN OPERATION

By Special Correspondent

FARMINGTON, N. Mex., July 9.—The increased daily average runs of the pipelines is the most remarkable event in the field this week. This is due to the fact that the pipeline from the Rattlesnake and Table Mesa structures has been put in commercial operation. All the pumps are now completed and the flow of oil through the line is a daily event. The loading racks on the spur of the Santa Fe Railroad at Gallup accommodate 24 tank cars and with present facilities about 40 cars can be loaded in 12 hours. Forty cars constitute a train load on the Santa Fe Railroad. These tanks hold 225 bbls. each. In order to get the rate granted by the Santa Fe Railroad on these shipments, it is reported here, the Continental Oil Co. has guaranteed to furnish for shipment practically a train load a day, or some 9,000 bbls. per day.

This will be in addition to what has been going out through the Midwest Refining Co.'s pipeline to Farmington and which is utilized at the Continental refinery here and about 500 bbls. of crude per day that is carried over the Denver & Rio Grande Western Railroad to the Midwest refinery at Salt Lake City. The shipments by these means have averaged about 1,000 bbls. per day, which with an average of about 3,000 bbls. per day from the Artesia Field has made the New Mexico daily average approximately 4,000 bbls. per day. It is believed that the new shipments over the Santa Fe Railroad will place New Mexico ahead of Colorado in daily averge pipeline runs and third state in the Rocky Mountain region.

Rattlesnake Strucutre

The Continental and Santa Fe Companies operating on the Rattlesnake structure 30 miles west of Farmington, Section 2-29-19, drilling on well No. 17, the deep test, which has the Pennsylvania sand as its objective, has reached a depth of 3,000 feet and is still drilling. They have also located No. 18 one location south of No. 17 and have started drilling on it with a rig with the Dakota sands as the objective. It is also on Section 2. The Continental Oil Co., operating on the Table Mesa structure, 25 miles southwest of Farmington, Section 3-27-17, drilling on No. 8 last week discovered it had a crooked hole and determined to skid the rig over a short distance and put down another hole beside the first location. This work is now under way.

The Continental Oil Co., drilling on the Tocito structure 36 miles southwest of Farmington, SE NW Section 8-26-18, on No. 1 has abandoned it at a depth of 1,430 feet, and announces it will not continue work on this structure. This is the structure that brought the highest price at the first Navajo lease sale and was purchased by the Gypsy Oil Co. for $46,000. The Gypsy Oil Co. put down a 3,000-foot hole and got water which was sold to the Indian Bureau for the use of the Navajos. This spring the Continental company made arrangements with the Gypsy company to put down another test on a 50-50 basis, it was stated at the time. The Continental company located its first well approximately 1 mile north of the one drilled by the Gypsy company and it, too, proved to be a water well.

The Ross-Bloomfield Royalties Co., operating on the Viles permit in the Bloomfield district, about 10 miles east of Farmington, Section 11-29-11, has resumed drilling after running casing and struck another coal strata at 1,970 feet. At the last report it was drilling below 2,000 feet with the Picture Cliff sand as the objective, which it expects to reach in a couple of hundred feet more.

Blanco District

Teague & Murphy, who had a contract to drill a deep test for the Union Oil & Mining Co. in the Blanco district and whose rig was destroyed by fire several weeks ago, have a rig moved to the location and are rigging up with the expectation that drilling will be resumed this week. The location is on Section 8-29-9, about 15 miles east of Farmington. They will resume drilling at a depth of 865 feet.

R. M. Smith, who has a personal arrangement with E. J. Miley to do some development work in the Bloomfield district, has Brown & Green doing contract work on the Bishop tract. A rig is being moved in on this tract, the intention being to use it in testing out the Picture Cliff sand.

The Portage Oil & Gas Syndicate, operating on the Glade structure about 6 miles northeast of Farmington, Section 24-30-13, has this week succeeded, it believes, in getting a perfect water shutoff and has overcome the cavings that have delayed it for several weeks, and has resumed drilling at a depth of 1,470 feet.

The Congress Oil Co., operating in the Coots Canon district, 12 miles southeast of Farmington, on the Garland permit, Section 34-29-11, is drilling in a lime formation that it considers a very favorable indication that production will follow. This formation was encountered at a depth of about 1,300 feet.

The announcement that President Coolidge had vetoed the bill recently passed by both branches of Congress to define the rights of operators on what is known as proclamation or executive order Indian reservation lands, and which affected this section almost exclusively, was met here with mixed expressions of approval and condemnation. It is generally believed the Supreme Court will pass on the case in the suit that has been carried up involving the rights of the Southwestern Oil Co. in Boundary Butte, a structure lying about 90 miles west of here and on which oil in commercial quantity had been discovered. Attorney-General Stone held invalid the act of Secretary Fall in declaring these lands to be subject to the provision of the government's leasing law. Most oil men here believe the Supreme Court will sustain the action of Secretary Fall in regard to the proclamation lands. After Congress had passed the Hayden bill and before the President had vetoed it Indian Commissioner Burke announced that a sale of these proclamation structures would be held soon. The President's veto stops this and further development until the Supreme Court or Congress acts.

LOS ANGELES EXPOSITION

LOS ANGELES, Calif., July 10.—Preparations are now being completed by local oil refining and distributing concerns for the reception of several thousand oil and oil well supply buyers who are expected to attend the Chamber of Commerce "Industrial and Trade Exposition," August 16 to 22, in the recently completed Shrine auditorium.

G. A. Axelson, president of the Axelson Machine Co., R. P. Miller, of the Union Iron Works, G. B. Kirker, of the Westinghouse Electric Manufacturing Co., H. G. Steele, president of the United States Electrical Products Co., and P. D. Howse, president of the Electrical Products Corp., all members of the Chamber's executive committee in charge of exposition plans, made the forecast that in all, approximately 16,000 buyers would visit the exposition.

THOMAS A SIMPSON DEAD

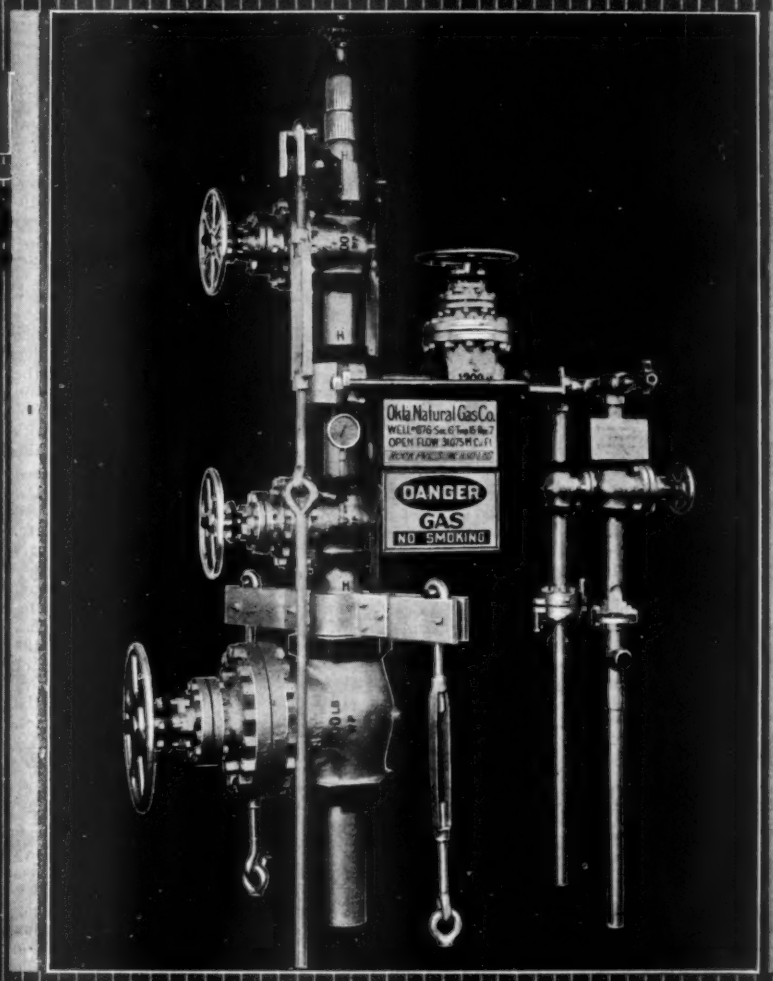
WASHINGTON, D. C., July 8.—Thomas A. Simpson, assistant to the president of the United States Shipping Board, died suddenly in his apartment here on Tuesday evening.

Mr. Simpson, who was a native of Buffalo, N. Y., was reared in Olean, N. Y., and entered the oil business in the Kane, Pa., Field, in the employ of John H. Markham, whose son-in-law he was afterwards to be. He was a tool dresser and later a driller, and after working in various fields in the East went to Oklahoma where he became a drilling contractor, operating in various fields in the Mid-Continent.

About two years ago Mr. Simpson was appointed American secretary of the General Claims Commission of the United States and Mexico. Later he went to the Shipping Board.

He is survived by his widow, Mrs. Mabel Markham Simpson and one son, Thomas Hayes Simpson. Deceased was a son of William H. Simpson.

The body was taken to Olean for burial.



CHRISTMAS TREE of 1200 lb. WESTCOTTS

An exact reproduction of the top of Oklahoma Natural Gas Company's high pressure well No. 676, near Stroud, Oklahoma,—made for Bureau of Mines exhibit at the recent Natural Gas Association convention. Westcott 1200-Lb. Valves are used throughout, on this 1150-lb. pressure well.

WESTCOTT Valves are designed and built exclusively for the Oil Industry. Drilling valves, pipe line valves, refinery valves.

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CONTINENTAL

To Test Christian County, Kentucky

Petroleum Exploration Co. Planning Deep Drilling. Ohio Oil Co.'s Showing 10 Miles from Owensboro Production

By Whit
Staff Correspondent, Kentucky-Tennessee

BOWLING, GREEN, Ky., July 12.—Some very interesting development work is reported for the week from the Kentucky Field, the most important being a purely wildcat venture on the Ambrose farm, in the Owensboro District of the Western Division and in Daviess County, 10 miles in advance of production. The oil showing was found in the Jett sand but owing to the fact that pipe line connections has not been made, the well has not been tested out to get its real value.

Two other interesting wildcat wells that have been closely watched during the past couple of months in the northwest corner of Warren County, have at last been completed. One is on the C. H. Daugherty farm and the other on the N. L. Miller. Had these wells proven commercial producers, it would open up a field for future development, but they fell into the duster list.

The leading completion is on the Joe Bob Ellis farm, in the Owensboro District and shows for a 35 bbl. producer and will make a 15 bbl. well settled. Other wells in all fields in the Blue Grass State are rather light as Barren or Cumberland Counties failed to show their usual good producer.

There appears to be a revival of development work in all quarters of the State, and would be more but there is a scarcity of water for drilling purposes in many of the fields that has hampered work to a great extent.

Barren County leads in completed work for the week closely followed by Owensboro, and Allen in the west and Lawrence-Johnson Counties in the east.

Week's Work

During the week a total of 32 completions were reported from the Kentucky fields, 24 being oil wells with a flush of 166 bbls., and 8 dry holes. This is a decrease from the previous week's figures of 26 completions, 7 dry holes, 5 gas wells and 318 bbls. less flush production. These wells were distributed among the various counties as follows:

	Comp.	Wells.	Prod.	Dry.	Gas.
Barren	7	5	31	2	0
Owensboro dist.	6	4	45	2	0
Lawrence-Johnson	6	6	39	0	0
Allen	6	4	9	2	0
Estill	3	3	32	0	0
Johnson-Magoffin	1	1	5	0	0
Lee-Owsley	1	1	5	0	0
Warren	2	0	0	2	0
Total	32	24	166	8	0
Last week	58	38	484	15	5
Difference	26	14	318	7	5

Western Division

One of the interesting announcements of the week from the Western Kentucky Division is that the Petroleum Exploration Co., one of the large development companies in Kentucky, contemplates the drilling of a deep test well in Christian County, in the southwestern part of the State, two counties west of Warren County in what is known as the Mississippian Plateau. This should be a very important test as little drilling has been done in that portion of the State.

The Petroleum Exploration Co., drilled a purely wildcat well on the N. L. Miller farm, in the northwest part of Warren County, northwest of the Sandidge Pool, a short distance south of the little hamlet of Benleo and north of Hightowers Landing. This test was drilled to a depth of 1,416 feet and was a duster. Almost directly west of this well a test was completed by F. F. Blanchard on the C. H. Daugherty farm, just east of the Barren River and between there and the dry hole drilled on the Miller farm, and directly north of Stumps Bluff, where the river takes a horseshoe bend. This was also dry at 1,335. Had these two wells proved commercial producers, it would have meant a great activity for Warren County. This is a very rugged country where the two tests were made although there are good roads almost the entire distance from Bowling Green. E. M. Trent & Co., did the drilling on the Miller test and Roy Beard was the contractor for the Daugherty test.

An important deep test to be drilled to a depth of 2,000 feet is under way by Reaher and others on the W. M. Hall farm, about four miles south of Scottsville, Allen County, on the Red Boiling Springs road. The well at last report had reached a depth around 1,600 feet and its outcome will be watched with interest.

Owensboro District

The Owensboro District is now one of the main cogs in the oil development of the Western Kentucky Division and numerous large concerns are entering the field which means that it will be most thoroughly developed. Among the late concerns to enter the field is the Ohio Oil Co., Petroleum Exploration Co., and E. E. Chrysler.

Miller and Damron, contractors, drilling for the Ohio Oil Co., on the Ambrose farm, struck a nice pay in the Jett sand at around 600 feet. This is a pure wildcat, being 10 miles away from production and opens up a wide area of territory to develop, and the well is said to show above the average producer. The well will not be put on the pump or operated for some time on account of pipeline facilities. While waiting for the pipeline connections, the company will test out nearby territory by additional drilling. This well created more interest than any well found in Daviess County or the Owensboro District for a long period and means much to the surroundings. The Ohio Oil Co., is busy securing leases in both Daviess and Ohio Counties and the nice showing on the Ambrose farm is an incentive for more active development by this company which is one of the largest well owners in the country, having around 22,000 wells on the pumps in various fields of the country and has a most thorough man at its head, in J. C. Donnell, of Findlay, Ohio.

With the acquisition of a good sized block of acreage in Daviess County, Petroleum Exploration Co., expects to drill a test well on the block at an early date. The new purchase according to reports of Manager A. R. Marshall of the Kentucky land department of the company, is known as the C. M. Farmer lease, located not far from Whitesville, and consists of 320 acres. On the south the lease joins the William Howard farm of 130 acres thus giving the company a total of 450 acres in one block. On the lease adjoining the C. M. Farmer tract, two producers have been brought in during the past few weeks and on both the east and west sides of the William Howard lease good wells have been drilled in thus making the acreage look inviting for future production.

E. E. Chrysler, of Casey, Illinois, representing a group of independent oil operators, has taken a lease on a large block of territory around Red Hill, in Daviess County, and is moving a rig there for the purpose of drilling a test well. This is in virgin territory, and the well is in the nature of an experiment, but if it proves productive it will add a large territory to the field of the county.

The test well of Johnson & Inglis, on the J. T. Trogden farm, 8 miles almost due south of Whitesville, in Ohio County, that had a showing of oil in a formation at 336 feet, in going deeper had reached a depth of 650 feet when trouble was experienced with broken machinery and is now delayed awaiting parts, requiring a few days quietude.

The Penn Indiana Oil Syndicate drilled a dry hole in both the Jett and Barlow sands in a second test on the W. Griffith 270 acres. Same company's No. 6 on the Laura Mercer 84-acre farm, is in and showing for an average producer but not yet completed. The Chicago Petroleum Co., landed a duster in the Barlow sand at No. 7 on the Guenther-Grant farm, in the Swope Pool.

The White Plains Oil and Gas Co. (Snowden interests) No. 2 on the south 50 acres of the Joe Bob Ellis farm, is a 10 bbl. pumper in the Jett sand. This company's No. 4 J. J. Midkiff farm, in the Midkiff Pool, is also a 10 bbls. pumper in the Barlow sand, the Jett sand showing no oil. This company's No. 3 on the Joe Bob Ellis is in the sand, making a good showing estimated at 15 bbls. settled production. John W. Loman, attorney, has what shows for a nice producer at No. 3 on the Joe Bob Ellis 50 acres, and is starting No. 4 well.

The Leeper Oil Co.'s No. 1 on the J. S. Collier 100 acres, in the Collier Pool, is better than a 10 bbl. pumper from the Jett sand. This company's No. 1 on the J. A. Greer 100 acres was dry in the Jett sand and going down for the Barlow sand. Clarence A. Leeper is starting a well on the E. L. Farmer farm, just west of the J. S. Collier farm.

C. E. Daugherty and others' No. 2 Oat Neel farm, was dry in the Jett sand and is drilling to the Barlow in hopes of picking up commercial production from that well known formation. Tremor & Thompson's test on the M. Coleman farm is also dry in the Jett and going to the Barlow sand. The Ohio Oil Co. is drilling No. 1 on the J. B. Ellis 300 acres, about 3½ miles southwest of the Midkiff Pool, and in the northeast corner of the farm.

The Chicago Petroleum Syndicate is drilling No. 8 on the Guenther-Gant farm, in the Swope Pool.

Barren County

The best completion of the week in the Glasgow Field of Barren County was made in the Knob Road District, by the Star Oil & Gas Co., in No. 7 on the Richardson farm, which was drilled to a depth of 403 feet and given a 30 quart shot, resulting in a 15 bbl. steady pumper. No. 8, same farm, is drilling. R. B. Tyler's No. 8 on the White farm, is good for 3 bbls.

In the Oil City Pool, Lew J. Emery Jr. & Son's No. 3 on the Martin farm, is reported a duster.

In the Emery-Moore Pool, the Houchins Leasehold Co.'s No. 14 Mayfield farm, estimated at 5 bbls.

In the Gorby Pool, Jacob Best, trustee,

(Continued on Page 100)

SAGINAW'S FIELD MAY GET DEEP TEST TWO MILES NORTH OF DISCOVERY

By Whit

SAGINAW, Mich., July 9.—No new completions have been made in the Saginaw Field, of Saginaw County, due to the hard luck of the drilling crews from fishing jobs and jacking over of holes that had already entered the Marshall sand at several hundred feet. Boulders have made a lot of trouble.

The one well that is uppermost in the minds of operators and scouts is the north test of the Bliss Petroleum Co. on the Carl Boldebuck farm, Section 2, nearly 2 miles north of the discovery well of the Saginaw Field. This well struck the top of the Berea Grit sand at 1,883 feet and drilled 13 feet in the sand with only a slight showing of oil, then drilled to a depth of 39 feet in the sand with no improvement, not even water being encountered, but if reports are true the drill will keep going down until water is found in the Berea sand or an improvement is made in the oil showing. As to making a deep test of the well, in case it proves dry in the present sand, has not yet been determined, but there are more sands below that contain or should contain oil. This company is starting its second well on the Casper Ulrich farm, in the southeast quarter of the northeast quarter of Section 14, where it has a producing well and plans to drill four wells on the farm, which is located on the Hermansau Road.

The Sun Oil Co. is starting a test to the north of production and on the Ferdinand Stelzriede farm in the north half of the southeast quarter of the southwest quarter of Section 11, and across the fence from the Weiss farm well owned by the same company. Same company is drilling at No. 1 John Schoenheit farm, just south of the Weiss farm, where the rig had to be skidded over the second time after the first setting and is working at a second venture on the same farm.

The tools have been raised from a fishing job in the Saginaw City Building Co.'s test on the E. E. Householder farm, half a mile or so northeast of the Sun Oil Co.'s producer on the Weiss farm and in the northwest quarter of Section 12, and drilling has been resumed by Contractor M. E. Lee.

V. M. Vorhees and Thomas McNally are at work on a test on the Charles Ulrich farm, at Hermansau and Shattuck roads. Glen R. Wilson and others' well on the W. C. Mert property at Oakley and Reed Streets is close to the Marshall sand. The Ohio Oil Co. is going along nicely with its well on the Mershon-Eddy-Parker property, near the North Michigan Avenue Pere Marquette Railroad crossing. The Superior Oil Co.'s well on the John Spatz property set 8-inch casing at 735 feet and getting along in good shape.

Organization of two new companies to test holdings in the vicinity of Saginaw is announced. The Winigas Oil Corp. is capitalized at $25,000, with officers as follows: President, John G. Schindehette; vice president, George A. Wickham; secretary, Alfred I. Hawkins; treasurer, William B. Freidinger. These officers, with L. W. Wells, constitute the board of directors. The company has a rig up and is ready to spud on the John Kundiger farm on the Webber Road east of the Pere Marquette Railroad. The other is the Saval Development Co. which is to be incorporated for $25,000, officers being, Charles H. Kretschmer, president; Glenn N. Reem, vice president; Archibald Robertson, secretary; Ezra Deibel, treasurer. This company plans to start a well within a few days on the C. H. Kretchmer farm, near Ames and Morgan Streets.

Leases Filed

George W. Shillings, of Massilon, Ohio, filed for record in Saginaw County, two leases. One on the Frank Holya 80 acres, in Brant Township, and the Paul Trarbek 40 acres, same township.

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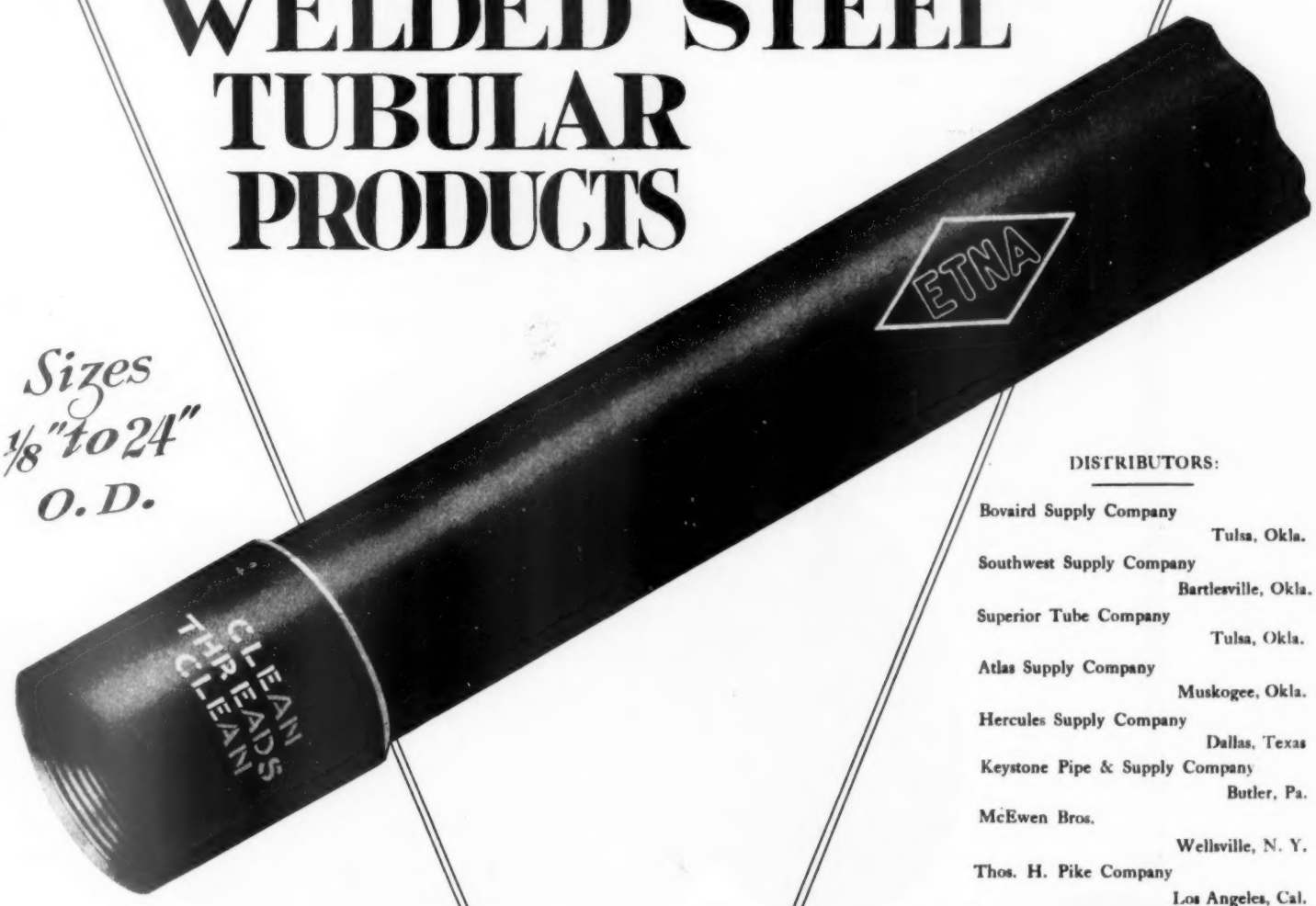

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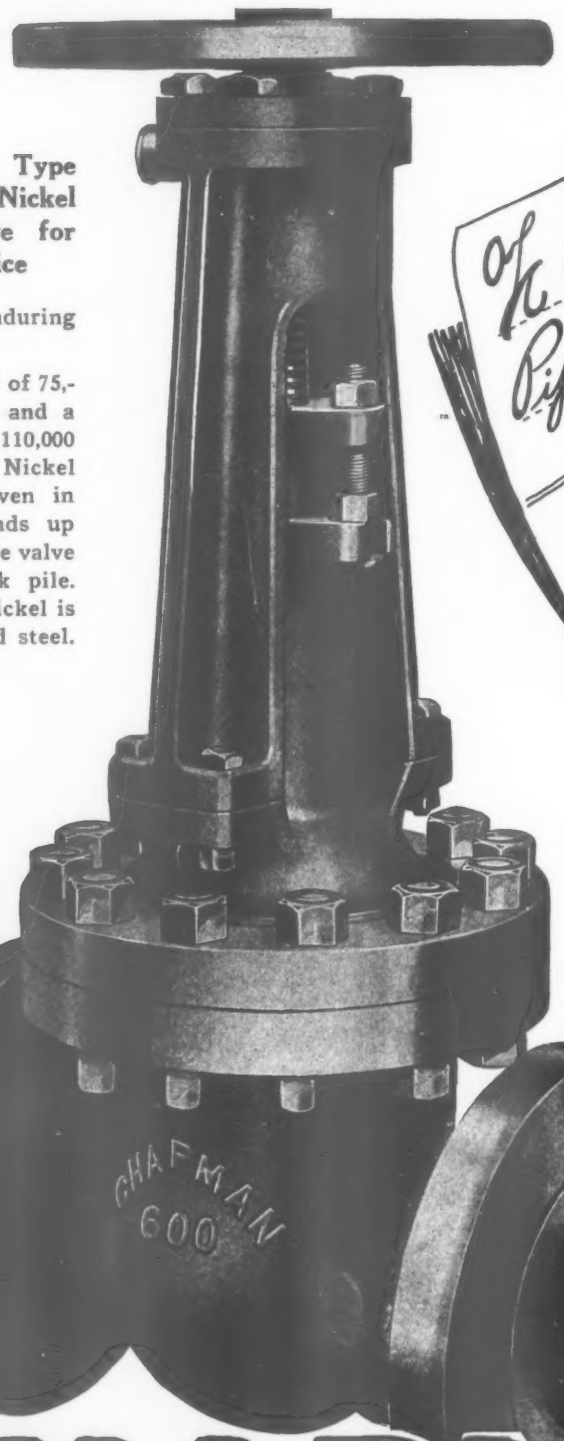

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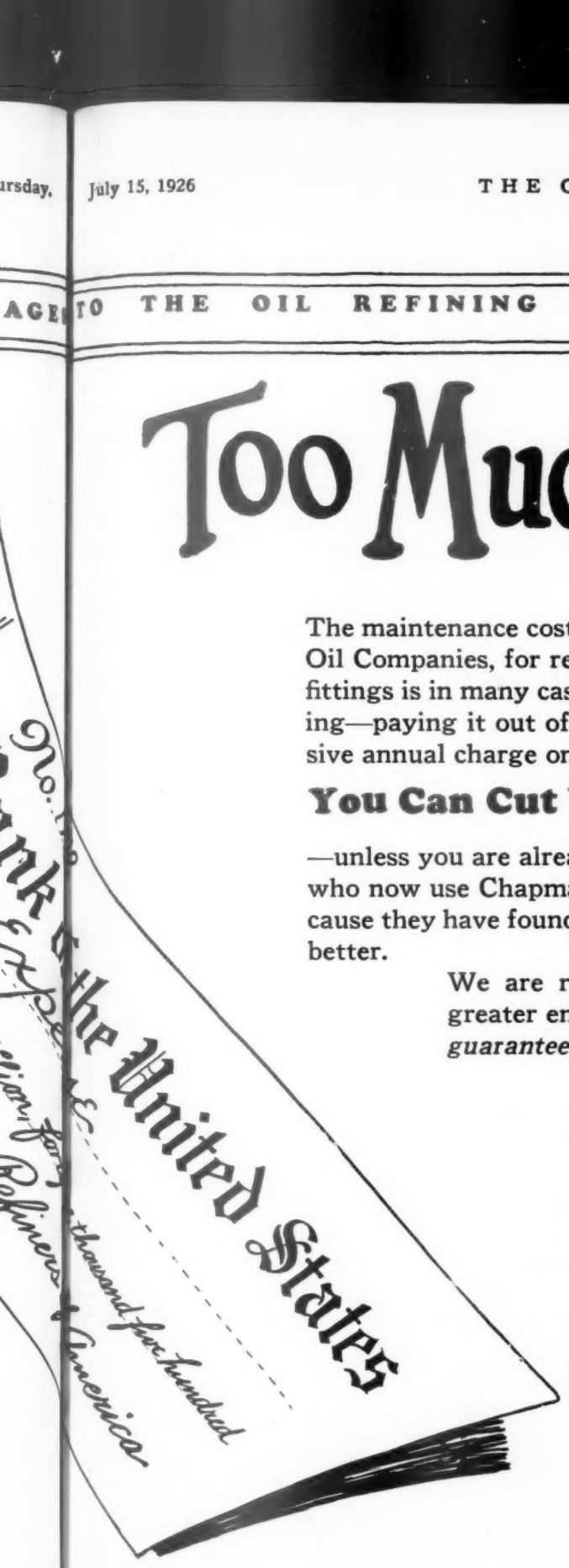

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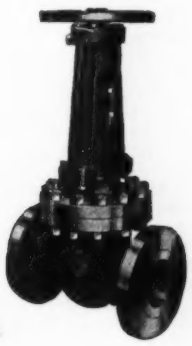

Good Producers in Southeastern Ohio

Empire Gas & Fuel Co. Gets 176-Bbl. Completion in Holmes County. West Virginia Gets Some Good Wells

By D. S. Wakenight
Staff Correspondent, Eastern Fields

PITTSBURGH, Pa., July 10.—Since the eastern fields were last reviewed, the usual weekly number of wells were completed but only a very few better than average pumpers. There is no section in the eastern fields in which operators are making any considerable effort to push development work. In the Big Injun sand development in Henry district, Clay County, there is more activity than in any other. Both the South Penn Oil Co. and the West Virginian Gasoline & Oil Co. are back of most of the work under way and starting. The late completions are below the average size of those completed during the early days of the development of the pool.

New producing territory in the eastern fields is scarce and hard to find. During the first half of the current year, no new pools have been discovered in any section. This is all the more deplorable since quite a number of wildcats have been completed.

Best Completions for the Week

The South Penn Oil Co.'s 415-bbl. producer, on the Atkinson farm, in Grant district, Ritchie County, West Virginia, proved a consistent producer, the last gauge giving a production of 300 bbls. a day. Like all other producers completed lately it is located in defined territory. The next best well completed about the same time was the Waynesburg Gas Co.'s test on the McCluskey farm, in Liberty district, Marshall County, credited with a production of 295 bbls. the first 24 hours after drilled into the Gordon sand.

The deep sand territory in southeastern Ohio, completed but one good producer, the Empire Gas & Fuel Co.'s second test on the Delpha Netherow farm, in Lot 10, Hardy Township, Holmes County, which produced 175 bbls. the first 24 hours after shot.

Southwest Pennsylvania completed gassers, one much better than the average. Outside of Greene County there is very little doing.

Week-End Completions

At the close of the week of development work, the southeastern Ohio fields reported quite a number of wells and one of them much better than the average Berea grit well. It is F. M. Rugg & Co.'s No. 6, on the Clinton S. McKinney farm, in Lot 24, Newton Township, Licking County. The first 24 hours after shot it produced 50 bbls., which is larger than any other previous completion in that locality. In Lot 24, same township, the Ohio Fuel Supply Co. got a fair producer in the same formation after completing and shooting No. 3 on the Ellen E. Forry farm. It produced 16 bbls. the first 24 hours.

Athens County

In Section 23, Waterloo Township, Athens County, F. L. Guenther's test on the Lafayette Hewitt farm got only a light show of oil in the Berea grit and has been abandoned. In the Fisher Pool, Section 34, Harmon and others have completed in the Berea grit a test on the John Lax farm. It is so light as to make scarcely a profitable producer.

Vinton County is receiving more attention at this time than in a number of years. The production is found in the Berea grit and the wells are small. At Bolin Mills, Section 7, the Gordon Oil Co. has completed and shot a test on the Wesley Walburn farm. It is a 2-bbl. pumper.

Deep Duster in Coshocton

In the northeast quarter of Section 21, Perry Township, Coshocton County, the Kemrow Oil Co. has completed a test on the M. C. Wright farm, to a total depth of 3,411 feet. Neither oil nor gas was found in this well. It has been plugged and abandoned. In the southeast quarter of Section 26, Center Township, Noble County, J. H. Yehrain & Co. completed in the Buell Run sand No. 4 on the N. C. Brown farm. About 15 feet of broken sand was drilled through and contained neither oil nor gas.

In the southwest quarter of Section 14, Sutton Township, Meigs County, the Meigs & Summers Oil & Gas Co. has completed in the Berea grit a test on the Homer Inman farm. It is dry and abandoned. In Section 10, Madison Township, Columbiana County, R. C. Miller & Co.'s No. 8, on the M. J. and G. F. Miller farm, is a very light pumper in the Squaw sand.

In Section 53, Salem Township, Washington County, L. B. Clymer & Co. have a 5-bbl. pumper in the Macksburg 500-foot sand at No. 4 on the William L. Schramm farm. In Section 19, Lee Township, Athens County, the Ohio Fuel Gas Co. is drilling a test on the George M. Williams farm. In Section 15, same township, Clarke and others are drilling a test on the C. Jones farm. In Section 25, Bethel Township, Monroe County, Forest, Simons & Co. are drilling a second test on the Pricella Adams farm.

West Virginia

West Virginia had few completions at the close of the week. Five miles northwest of Clay Station on Hollywood Creek, Geary district, Roane County, the Stump Oil & Gas Co. has completed in the Squaw sand a test on the Looney farm estimated to be good for 4 bbls. a day. In Walton district, the Clifton Oil & Gas Co. has the rig completed for another test on the G. M. Sumers farm.

At California House, Clay district, Wirt County, the Roberts Oil Co. has drilled down to the Berea grit old No. 11 on the John F. Dravo farm. It is a duster.

Harrison County

In Union district, Harrison County, the Reserve Gas Co. has drilled down to the Speechley sand a test on the John D. McReynolds farm. It is a fair gasser. In Coal district, the Washington Gas Co. has drilled to a depth of 2,374 feet on the E. D. Tittro farm and shut down. In Clark district, the Hope Natural Gas Co. has rig material at a location on the C. W. Lynch farm.

On Taits run, Grant district, Ritchie County, William T. Wyatt & Co. completed No. 11 on the West Virginia tract not good for more than 2 bbls. a day in the Big Injun sand. On Chips run, West Union district, Doddridge County, the Clifton Oil & Gas Co. has completed in the same formation a second test on the Joseph Smith farm. It is a small gas well.

In Clay district, Wood County, the Big Sand Oil Co. has a gasser in the Berea grit at a test on the S. L. Anderson farm. In Clay district, Wirt County, the Roberts Oil Co. is drilling down to the lower sands No. 11 on the John Devoe farm. In Clay district, Ritchie County, the Hardwick Farm Oil Co. is drilling a second test on the Charles Hardwick farm.

Pleasants County

In Union district, Pleasants County, W. J. Cleary and others have a duster at a test on the A. B. Flesher farm. Albert Neely had the same luck at a test on the Waldo Wagner farm. In Grant district, the Dividend Oil & Gas Co. is drilling a test on the Graham heirs' farm. In McKim district, O. C. Cunningham and others are due in the Cow Run sand at a test on the A. S. Hart farm. George Stout & Co. have started to drill a test on the William Elliott farm. In Jefferson district, the Bailey Gas Co. drilled deeper to the Maxon sand its No. 4 on the H. S. and J. E. Ambler farm, good for 2 bbls. a day. In DeKalb district, Gilmer County, the Philadelphia Oil Co. has the rig completed for another test on the D. Stalnaker farm.

On Dog Comfort Run, Grant district, Ritchie County, 1 mile west of production on the A. Miller farm, C. D. French and others have drilled a test on the E. Ingram farm through the Big Injun sand and dry. In McKim district, Pleasants County, Adam Ward has completed No. 12 on the G. W. Varner farm. It is a light pumper in the Keener sand.

Monongalia County

In Battelle district, Monongalia County, the Pittsburgh & West Virginia Gas Co.'s test on the Kennedy heirs' farm is a gasser in the Bayard sand. In the same district, the same company is drilling at 3,000 feet at a second test on the Doctor Bell farm. Four and one-half miles south of Morgantown, Clinton district, Monongalia County, the same company is drilling at 1,000 feet at a test on the Roscoe Eakin farm. This test is somewhat of a wildcat, no previous production within 10 miles of it. In Clay district, the Carnegie Natural Gas Co. has a rig up on the D. R. Wright 38 acres. In the same district, the Philadelphia Oil Co. is drilling No. 4 on the Philip Shuman farm from the Big Injun to the Bayard sand.

In DeKalb district, Gilmer County, the Hope Construction & Refining Co. has a gasser in the Maxon sand on the Edward Reynolds farm good for 2,000,000 feet. In Burning Springs district, Wirt County, James Wilson's No. 7 on the A. Eagler farm is a very light pumper in the Big Injun sand. In Walker district, Wood County, the South Penn Oil Co.'s No. 18 on the Susan Grant farm is a 5-bbl. pumper in the Berea grit.

In Union district, Ritchie County, the Manufacturers Light & Heat Co. has drilled its test on the Lee Flesher farm to the fifth sand, a total depth of 3,024 feet. Nothing was found in the fifth or any of the lower formations. It was then filled up to the Big Injun sand and shot and now shows for a very light pumper in this formation. In the same district, M. G. Taylor and others have completed a test on the Margaret Bruffy farm. It is a gasser in the Maxon sand. The Hope Natural Gas Co.'s test on the H. M. Hodge farm is a duster in the Big Injun sand. The Pittsburgh & West Virginia Gas Co.'s Nos. 3 and 4, on the W. B. Zinn farms, are gassers in the Big Injun sand.

Wildcat Showing a Little Oil

At the mouth of Anderson branch on Jennies Creek, Lincoln district, Wayne County, and 5 miles west of production on Breeden Creek, A. B. McGrew has completed a test on the Thomas Caldwell farm to a depth of 110 feet below the Berea grit. A light gas pressure was developed in the Berea grit and a little oil. It will be given a test.

(Continued on Page 83)

ABOVE THE AVERAGE COMPLETIONS REPORTED FROM CENTRAL WEST

By Whit
Staff Correspondent, Central West Fields

FINDLAY, Ohio, July 10.—A total of 28 completions were reported from the Central West Field for the week including the Lima Field, Central Ohio, Indiana, Illinois and Michigan, and among the list were some very fine producers, not large but above the average.

In the Lima Field a 60 bbl. producer on the Lenney farm, Bath Township, Allen County; a 35 bbl. well on the Lucius farm, Marion Township, same county; a 40 bbl. well on the Haley farm, Eagle Township, Hancock County; one for 52 bbls. on the Thaiss farm, Perrysburg Township, Wood County; a 25 bbl. well on the Coffena farm, in Cynthia Township, Shelby County, and a 50 bbl. producer on the Schick farm, in McDonel Township, Hardin County, were the result of the drill in wells above the average for the week.

Indiana had two completions of 50 bbls. each, one on the Harrison farm, Harrison Township, Knox County and the other on the Gurney Stewart farm, Pike Township, Logan County.

Two completions of note were reported from the Illinois Field. In Wabash Township, Wabash County, a second well on the Jermina Cisil farm, produced 30 bbls., and in Robinson Township, Crawford County, a gas well with a rock pressure of 150 pounds was opened up on the Harry E. Ottey property.

Indications are that a more active season will prevail during the current month than has been the case for the past six months, as much leasing has been under way of late in out-of-the-way places and releasing of old abandoned territory in the Lima end.

Lima Field

The old Lima Field of northwestern Ohio is coming strong, with 13 completions for the week in review and but one a dry hole, the other 12 having a flush production of 258 bbls., which is an excellent average for a field that has been producing from the same formation for over 40 years. The best of the week's wells was the sixth on the William Lenny farm, Section 12, Bath Township, Allen County, being 600 feet from the south line and 250 from the west line of the farm and operated by Charles Geselchen and others. The sand was topped at 1,314 feet and drilled 50 feet in for 60 bbls. The next best completion was that made by the Oko Oil & Gas Co., in the southwest corner of the Charles Thaiss farm in the northeast quarter of Section 29, Perrysburg Township, Wood County, with a flush of 52 bbls. Sand was struck at 1,240 feet and drilled 33 feet in the sand.

In the Roundhead Field, in McDonel Township, Hardin County, the Boston-Southwestern Oil & Gas Co.'s No. 1 well 250 feet from the north line and 750 from the east line of the Ira C. Shick farm, and a little in advance of production showed a flush of 50 bbls., with top of sand at 1,413 feet and total depth of hole 1,453 feet.

B. Porter and others' No. 23 well 1,400 feet from the north line and 1,000 from the east line of the J. H. Haley farm, Section 5, Eagle Township, Hancock County, produced 40 bbls. Sand at 1,313 feet and drilled 78 feet in the sand. R. T.

(Continued on Page 84)

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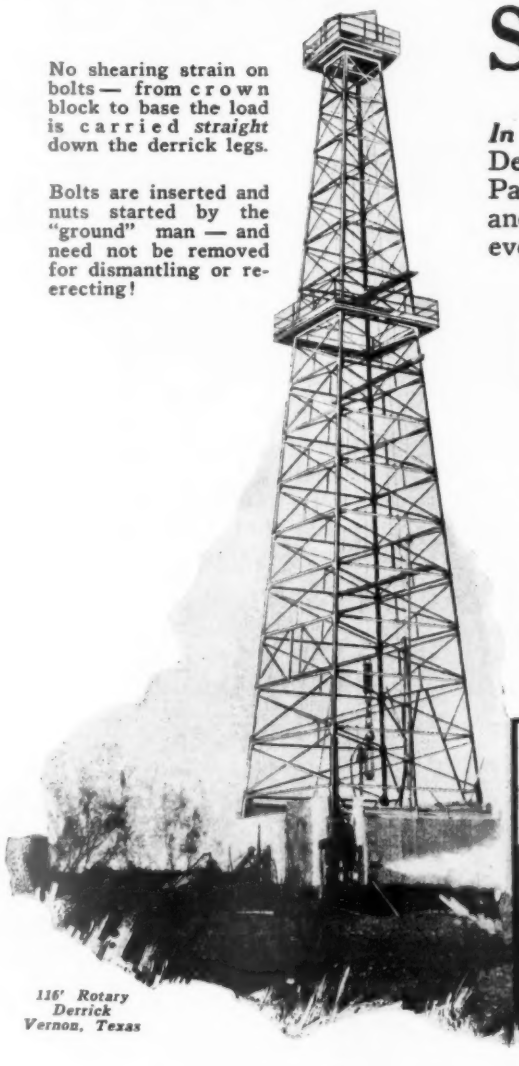

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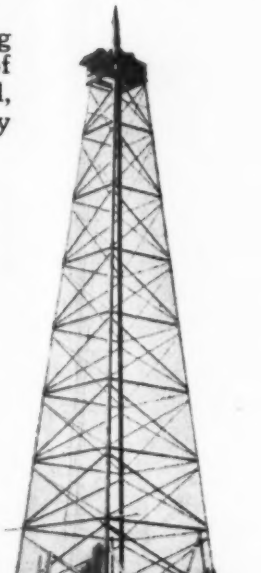

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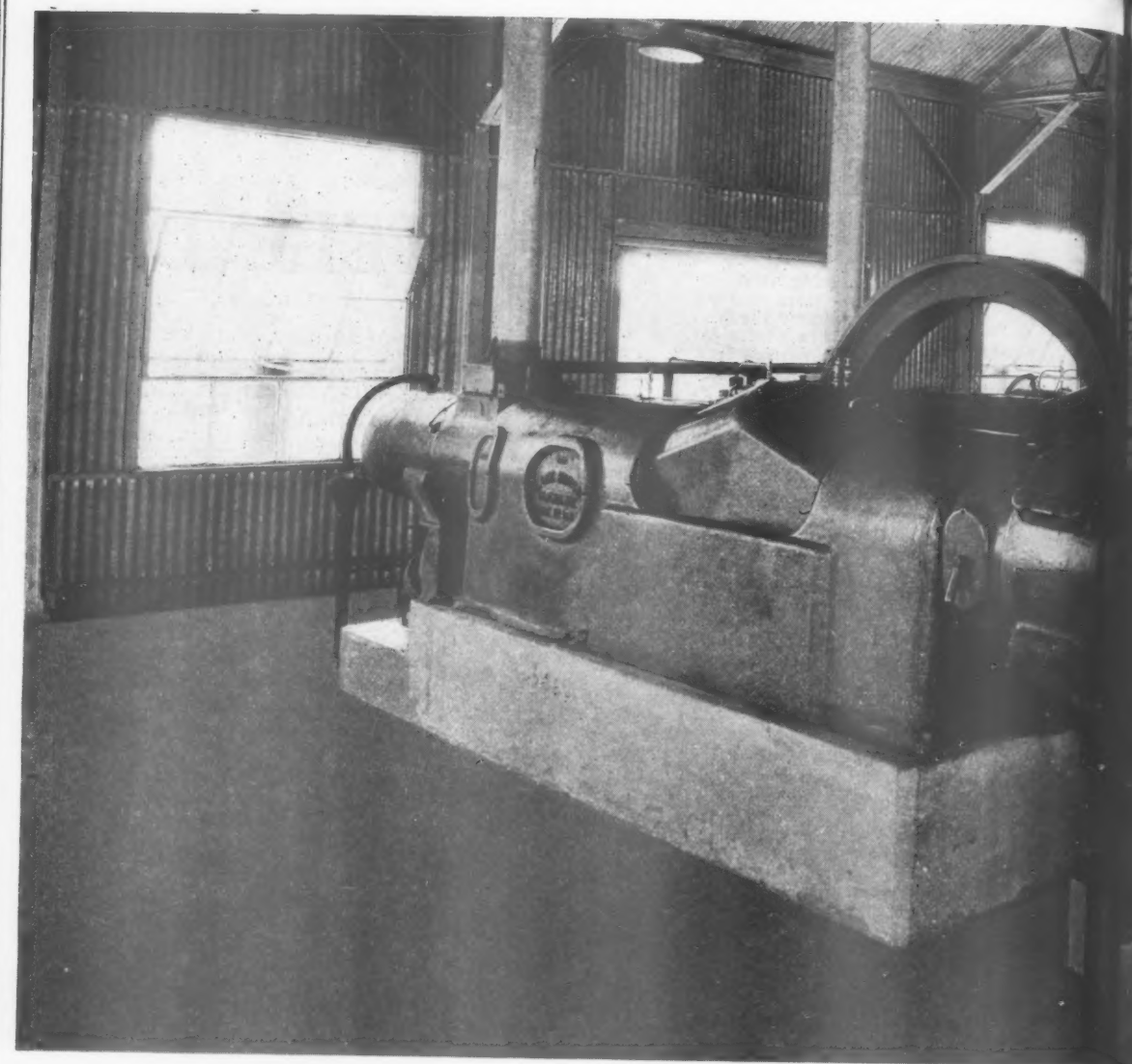
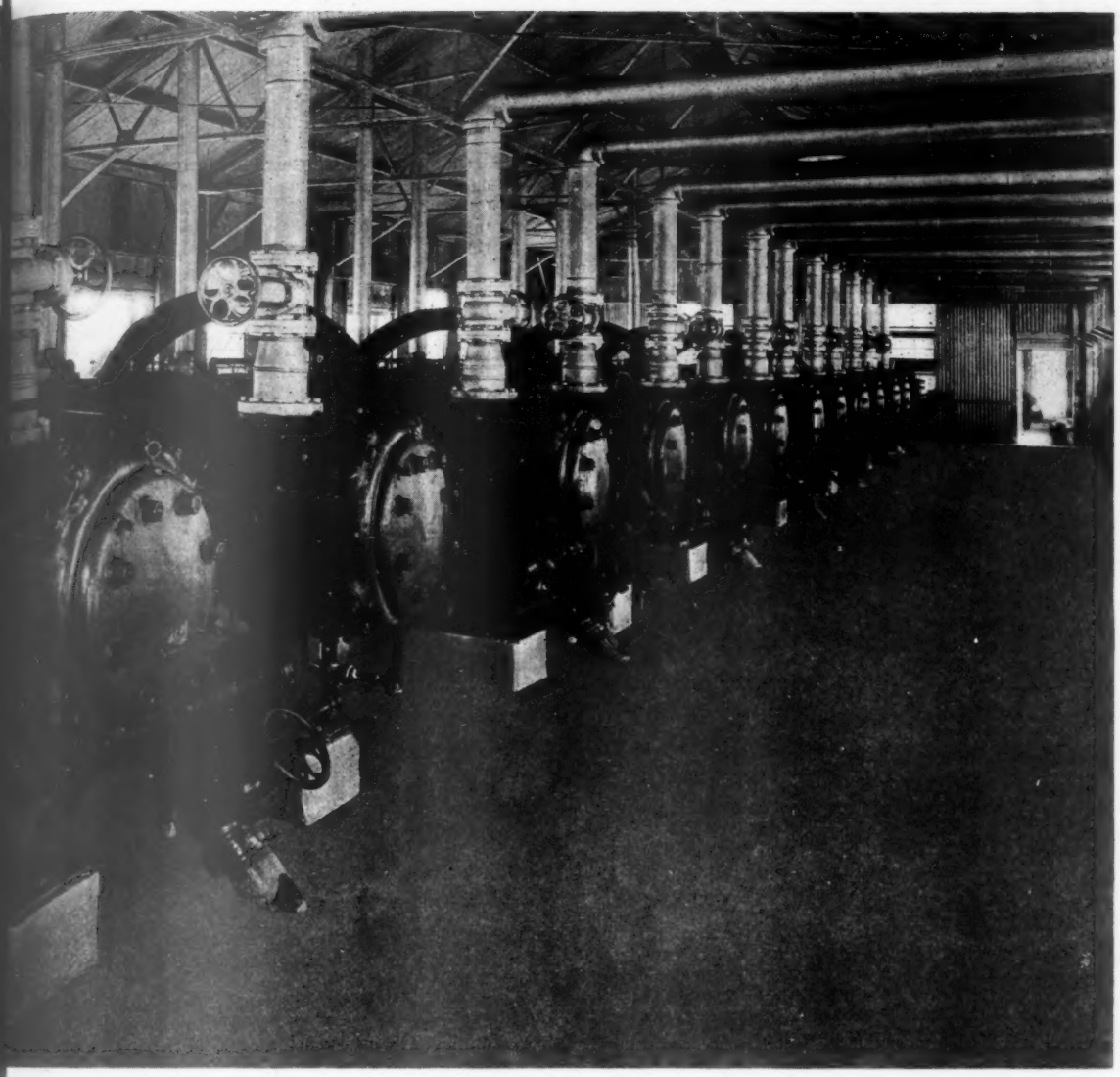


The Amerada Petroleum Company's new gasoline plant near Healdton, Oklahoma, is one of the most modern and complete in existence.

Matched

CLARK COM

XUM



The Compressor Equipment for the Amerada Petroleum Company's plant consists of six Clark Twin Type 165 H. P. Direct Driven Compressors and one 80 H. P. Clark Compressor.

BEAUTY
POWER
PERFORMANCE

SALES AND SERVICE

GAS ENGINEERING & CONST. COMPANY
125 West First Street,
Tulsa, Oklahoma

SMITH-BOOTH-USHER COMPANY
228 S. Central Ave., Los Angeles
50 Fremont St., San Francisco

MPRESSORS

MEN KNOWN IN OILDOM

R. W. Lowe

R. W. Lowe, general superintendent of the Standard Oil Company of Louisiana, has 25 years of oil field experience as a background.

Mr. Lowe was born in Louisiana and as a boy lived at Campti, not far from Natchitoches the oldest town in the Louisiana Purchase. He is the son of a blacksmith and the eldest of 14 children, and his early education was limited to what was taught in a little country schoolhouse. The death of his father left him the head of the family at the age of 19 years, and he took over the responsibility manfully.

At the time of his entry into the fields at Beaumont, Tex., during the Spindletop boom, he was nicknamed "Kid" on account of his youthful appearance. His first work in the field was a rig builder's helper, but during the next four years, he worked at about every job in the production department.

The many years spent in the Gulf Coast territory have given him an intimate knowledge of the varied operating conditions encountered there, and a natural resourcefulness has enabled him to patent several inventions which have smoothed out operating difficulties.

His early associates included Lon Melat of the Gulf Production Co., and the late D. C. Richardson, both of whom have been unusually active in the development of the Louisiana fields.

After service in the production department of The Texas Company, he became connected with the Benedum & Trees interests in Louisiana, and when those properties were sold to the Standard Oil Company of Louisiana, he continued in charge of the leases, and acted as assistant to J. E. Todd, who was general superintendent. Upon the death of Mr. Todd, in 1922, Mr. Lowe succeeded him as general superintendent.

PERSONAL PARAGRAPHS

Herbert James, of Tulsa, was in Shreveport, La., last week.

* * *

E. C. Templeton, petroleum engineer, is visiting in New York.

* * *

J. Massey has returned to Petrolia, Ont., from the Peruvian fields.

* * *

E. J. Haley, drilling contractor of Okmulgee, Okla., is in Amarillo, Tex.

* * *

H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers, has returned to New York after attending the International Geological Congress.

William E. Dickenson, is now with the Sun Oil Company at Beaumont, Tex.

* * *

H. R. Berry has left England for Trinidad where he is representing several oil enterprises.

* * *

James P. Moroney, oil producer of Okmulgee, Okla., is returning from a business trip to California.

* * *

D. P. Hamilton, president of the Root Refineries of El Dorado, Ark., is on a business trip in the East.

* * *

Clarence A. Leeper, well known operator of Owensboro, Ky., has returned to Kentucky from a business trip to Chicago.

* * *

J. W. McCulloch, of the McCulloch Oil Company of Okmulgee, Okla., has returned from a business trip to New York.

* * *

H. J. Lawler, head of the Skelly Oil Company land department, has made a flying tour of the Kansas and Texas fields.

* * *

Mr. and Mrs. W. L. MacKenzie and Boyce Mavity of Negritos, Peru, are visiting in Petrolia, Ont., and other Canadian points.

* * *

Mr. and Mrs. John W. Lowman and Walter Daily of Cleveland, spent some time looking over the Owensboro Field, Kentucky.

* * *

J. H. Fox, of the Henry H. Crossman Company, Chicago, Ill., spent several days in Shreveport, La., recently on company business.

* * *

J. S. Sidwell, of the Prairie Oil & Gas Company, is back in Tulsa, Okla., after opening an office at Amarillo, Tex., for his company.

* * *

William J. Lyman, representing the American Cast Iron Pipe Company of Birmingham, Ala., was a visitor in the Wyoming oil fields recently.

* * *

J. L. Elliott, of Vernon, Tex., has been appointed deputy oil and gas supervisor of the Panhandle district, succeeding H. H. Fitzpatrick, resigned.

* * *

Edwin Higgins, secretary of the California Chamber of Mines and Oil, has just returned from Colorado Springs, Colo., where he spent a few weeks.

* * *

J. W. Root, auditor for the Parkersburg Rig and Reel Company, is spending several weeks in the Louisiana-Arkansas territory on company business.

* * *

Paul Weaver has resigned from the service of the Cia. Mexicana de Petroleo el Aguila, and has joined the Gulf Production Company at Houston, Tex.

* * *

E. E. Chrysler, Casey, Ill., is in the Owensboro Field of Kentucky, looking over conditions for himself and associates and will do some development work.

* * *

Eddie Campbell, of the Petrolia, Ont., hydro-electric staff, will leave for Peru about the end of July, to join the staff of the International Petroleum Company.

* * *

P. W. Henneffy, superintendent of the Illinois Pipe Line Company, of Casper, Wyo., has returned to the west from Lima, Ohio, where he has been visiting old friends.

* * *

J. G. Goll, of the contracting firm of Regan & Goll, of central Ohio, who is located in the Saginaw Field of Michigan, has returned to Saginaw from a short visit to Ohio.

* * *

Mr. and Mrs. Ray Gregory and daughter, Marion, who have been in the Venezuelan fields, are in Petrolia, Ont., on furlough. They will return to Venezuela about November 1.

* * *

H. B. Simcox, general manager of the Continental Oil Company, producing department, was a business visitor at Casper, Wyo., from the head offices of the company in Denver, Colo.

* * *

Mr. and Mrs. Bruce Dunlop and family are reported en route to Petrolia, Ont., from the Peruvian fields, where Mr. Dunlop is connected with the International Petroleum Company.

R. J. Ward, formerly inspector of oil fields for the Department of Mines of Egypt, has resigned from the service, and will spend the next few months visiting the oil fields of the United States.

* * *

R. R. Templeton, of the Shell Oil Company, Los Angeles, Calif., left recently on an inspection trip which will take him to all parts of the globe. He will spend 58 days on the water before he returns to Los Angeles from The Hague.

* * *

Geologist W. H. Geis, formerly of the Consolidated Royalty Oil Company, with headquarters in Casper, Wyo., has left for California where he will take the position of western manager for the Continental Oil Company in the California fields.

* * *

Frank E. Kistler, resigned as president of the Producers & Refiners Corporation at the recently held annual meeting in Parco, Wyo., and Vice President L. R. Crawford of Denver, Colo., was elected to succeed him. Mr. Kistler will be identified with the newly created Petroleum Securities Company.

* * *

Martin Van Couvering, to whom much credit is due for the development of the northwest extension of the Long Beach Field, because of his work in that area, has just returned to Los Angeles, Calif., following an enjoyable vacation spent in the northwest.

* * *

Mr. and Mrs. John C. Looker of Bradford, Pa., celebrated their golden wedding anniversay recently. Mr. and Mrs. Looker have lived in the Pennsylvania oil region nearly all their lives, and Mr. Looker is one of the most successful oil operators in the Bradford Field, having done well enough in business to put him in the millionaire class.

* * *

Campbell M. Hunter, O. B. E., of London, Eng., one of Great Britain's most eminent petroleum engineers, is in the United States on a business mission. Mr. Hunter is a member of several British scientific societies. He has visited and studied most of the prominent oil fields of the world and is widely known for his technical and practical knowledge of the oil business.

* * *

G. G. Langan, district manager for Hill, Hubbell & Company, with headquarters in Tulsa, Okla., has gone to Monroe, La., in connection with the placing of one of his company's products on the Standard Oil Company of New Jersey's line from Monroe to Baton Rouge. From Monroe, Mr. Langan will go to Corpus Christi, Tex., in the interests of his company in connection with the new pipeline in that area of the Humble Oil & Refining Company.

* * *

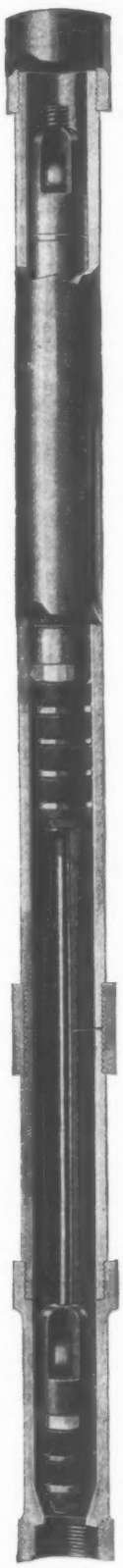
At a meeting of the Kansas Geological Society at Wichita, Marvin Lee, consulting geologist, was elected president to succeed George Forrester, temporary president, who replaced E. W. Scudder of the Gypsy Oil Company, who is now located at Denver. Vice presidents elected are: Charles Straub, Dixie Oil Company, and Edwin N. Carlson, White Eagle Oil & Refining Company. Walter Larsh of the Dixie was named secretary-treasurer.

* * *

C. J. Hares, chief geologist of the Ohio-Mexico Oil Corporation and formerly chief geologist for the Ohio Oil Company, is in San Antonio at the St. Anthony Hotel with his bride, formerly Miss Leonard of Dallas, Tex. They were married recently in Dallas and are en route to Mexico, where Mr. Hares has headquarters at Cuatro Ciengas in Coahuila and is doing the geological work on several big blocks of land his company secured from the Cardenas family.

* * *

L. M. Ayers has been chosen to act as assistant to the executives of the East Ohio, Hope Natural and Peoples Natural Gas companies, in industrial relations matters. Mr. Ayers was promoted because of his knowledge and successful experience gained while serving in a similar capacity with the Carter Oil Company, western division. He served as a leaser and leasing superintendent for the South Penn Oil Company in the West Virginia fields, and in a similar capacity for the Guffey-Gillespie Oil Company in Mid-Continent fields before going to the Carter Oil Company in 1921. In that company Mr. Ayers saw service in the accounting, tax, claim and right of way departments before taking over the supervision of industrial relations.



With 4 Cup and Pipe Extensions

"OILWELL" IMPERIAL PLUNGER PUMPS

"OILWELL" Imperial Plunger Pumps have been giving satisfaction in both domestic and foreign fields for more than 20 years. They are designed and built to meet severe pumping conditions, and can be used with 2, 2½, 3 or 4-inch tubing.

Furnished in lengths from 5-feet 6-inches to 11-feet and with either plain or corrugated plunger, the latter affording a liquid seal which prevents oil slippage to a great extent.

Simplicity of design is an outstanding feature ---the parts are not complicated and are few in number, and such parts as valve cages, balls, seats, cups and cup rings are "standard".

The Garbutt Rod Attachment is furnished, when desired, which permits pulling the standing valve. Four cup upper or lower plunger extensions can also be furnished and are used to assist the plunger after it has become worn, thereby extending the life of Imperial Plunger Pumps.

Regular

When fine floating sand, salt or other foreign substances are encountered, use

"OILWELL"
Imperial Plunger Pumps

Inquire at any of our 100 Branches

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OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

Natural Gas Developments

CAMBRIDGE GAS FIELD MOST ACTIVE IN OHIO

CAMBRIDGE, Ohio., July 10.—A gas field already capable of producing nearly 100,000 feet daily, has developed in Guernsey County within the past few months. Thirty highly productive wells have been developed and a hundred more are being drilled, three within the limits of Cambridge.

One of those in the city is being drilled by the Ohio Fuel Gas Co., on the property of Harry McWilliams; another on the property of W. A. Linton in West Cambridge, and the third on the Cambridge Glass Co. property, also in West Cambridge. The latter two are private projects. Wilbur Keith, whose two developed wells produce 6,000,000 feet daily and who has others drilling, built a nine-mile pipe line at a cost of $30,000 to bring his gas to Cambridge, where he sells a million feet a day to two factories.

The Ohio Fuel Gas Co. and the Ohio Oil Co., of Findlay, long ago acquired leases of most of the productive territory.

Under working agreement, wells developed by the Ohio Oil Co. are turned over to the Ohio Fuel Gas Co. for marketing at 45 cents per thousand feet in Cambridge and 55 cents in Columbus. Except for Keith, all independent companies sell their gas to the Ohio Fuel Gas Co. for 15 cents a thousand feet. The company owns all the pipe lines in the county except Keith's and a section in the northwest where an eastern Ohio company line skirts a corner of Londonderry township.

Of the wells drilled in, all but less than ten belong to the Ohio Fuel Gas Co., or the Ohio Oil Co. Leading independent companies are Big Line, Gibson Oil and Cambridge Oil, owning a half dozen wells with a total production of around 22,000,000 feet daily.

To back their faith in the future production, Cambridge gas men cite comparisons with other producing fields. Average rock pressure has been between 1200 and 1400 pounds, which, they say was the showing made 30 years ago in West Virginia where wells, although shallower, now show around 150, with the field producing gas during the entire interval.

Geologically, the gas bearing strata is a silica sand in the Niagara lime, encountered between 3,350 and 3,400 feet depth. The formation is streaked with shale, taken to indicate possible presence of oil. Less casing is needed in other sections, drillers declare, citing an exceptional case in a 3,460-foot well where only 350 feet of casing was necessary, and 1,100 feet in another, the maximum.

KANSAS CITY TALKING ABOUT CHEAPER GAS

KANSAS CITY, Mo., July 10.—Reduction of gas rates would be expected by the city management if plans for piping a manufacturers' gas line here from Amarillo, Tex., were carried out, Judge H. F. McElroy said. George E. Nicholson, president of the Kansas City Gas Co., confirmed the probability of the Henry L. Doherty Co., owner of the gas company, adopting fuel for industries here.

If the plan went through, Mr. Nicholson said, it was hoped the service could be supplied at not more than 20 cents per 1,000 feet. If this became true, Judge McElroy said, he would expect a voluntary reduction of rates, or, failing that, would attempt to force the reduction.

Mayor Beach said he felt that if gas could be pumped from Texas and sold here to manufacturers for 20 cents per 1,000 feet, gas brought here from Kansas for the use of householders should be reduced in price.

FOR HELIUM RESERVE

The United States Government has closed a contract with the Utah Oil Refining Co. and affiliated companies for 7,000 acres in eastern Utah on a structure immediately surrounding a gas well completed about two years ago. It is known as the Woodside structure and is about midway between Green River and Price. The well is reported to be rich in helium gas content and the Government has made arrangements with the Utah Refining Co. to move back on the location and plug the well under the direction of bureau of mines experts, sealing the gas in the earth as a future supply. The gas from the Woodside well has no commercial value aside from its helium content as it will not burn. All permits issued to companies and private individuals have been cancelled by the Government. The amount paid Utah Oil Refining Co. is $130,000.

ACCIDENT PREVENTION IN THE GAS INDUSTRY

By M. I. Mix*

Assistant General Superintendent, Distribution Dept., Peoples Gas, Light Coke Co., Chicago

The gas utility is one of the oldest of public service industries, and has the distinction of being one of the earliest in organizing its accident prevention work.

"Realization of the weakness is often the winning of half of the battle," provided steps are immediately taken to correct improper conditions. This proved to be true in the gas industry. The careful analyzing of occupational hazards and the designation of proper methods to overcome these accidents has been one of the chief means of combating careless and thoughtless practices in this, as in many other large industries.

The analyzing of statistics and the classifying of accidents to determine responsibility—whether the fault lies with the management in not properly instructing the workmen, or in not providing proper equipment, or, on the other hand, whether the fault is with the workmen in not following instructions, or in carelessness—is one of the first tools for good accident prevention work. The analyzing of the cause of each accident through proper and immediate investigation throws enlightenment upon conditions that can be corrected and thus prevents future accidents of a similar kind. A standard classification of accidents further provides inter-comparisons, not only by the departments of a large company, but also between outside companies, and results in elimination of accidents through keen competition.

Education of employes to avert accidents is a well recognized method showing wonderful results and has been practiced to the fullest extent in the gas industry; also, safety committees are used to inspect and supervise the fulfillment of safety precautions and methods.

The use of bulletins picturing accidents and safety measures, to permit the visualization of occupational hazards, is commended and I believe there are few gas plants that do not take advantage of the valuable posters sent out by the National Safety Council, characterizing hazardous conditions found commonly in every industry. These bulletins are sent directly to the superintendent, who carefully checks over his plant to see that the conditions portrayed are not to be found there, after which they are posted on a bulletin board for general information among the employes.

Discussion of Accidents

In properly conducted safety meetings each accident of recent occurrence is discussed thoroughly and suggestions made as to how it could have been prevented. It has been found very beneficial to have the victim of an accident present at these meetings to explain the circumstances of his accident. Very often this takes the place of discipline for carelessness and makes sure that the accident will not be repeated if it is at all preventable. If a man has to appear before this committee it sometimes points him out as either a very unfortunate or careless workman and steps may then be taken to relocate him in a position better suited to his ability, or provide for his dismissal if he is an irresponsible employe and a continual hazard to his fellow-workers.

Often a gas company sees fit to offer rewards for suggestions in relation to safety work. This gives the worker a particular incentive for his interest and is also valuable because of the publicity it brings him in the eyes of the management.

The periodical changing of the complete safety organization is a means used to bring forth new ideas as well as to let all employes have an insight into the workings of the safety committee and thus keep up enthusiastic interest.

Central Testing Laboratory

A great many standard safety devices are brought to the attention of all present day industries, and instead of having each company make its individual investigation, sometimes at a considerable expense, both in money and accident experience, these devices are referred to the safety committee of the central organization and tried out. If they are found to warrant it, they are approved for use.

In addition to the occupational hazards

(Continued on Page 86)

*National Safety News.

PANHANDLE GASSER, 200,000,000 FEET

CHILDRESS, Tex., July 10.—Creek beds, water wells and prairie dog holes in the vicinity of the Whittington gas well in the Shamrock Pool of Wheeler County, began spouting natural gas here after the Whittington had been "mudded" in an effort to control its flow.

Making an estimated 200,000,000 feet of gas daily, the well is said to be the largest ever known. It was brought in several days ago and was crammed with mud at that time to reduce the volume of escaping gas until it could be placed on a pipeline.

Some of the mud was removed in the belief that pressure had been reduced by the gas that had escaped since the pocket was reached at a depth of about 2,000 feet. Instead of diminishing, the pressure apparently had increased, because the gas suddenly blew out the remaining mud after some had been removed, workers said.

Mud again was employed and the well soon was plugged. Then it was discovered that gas, supposedly sweeping through loose earth strata which had been penetrated by the well, was flowing from prairie dog holes, creek beds and fissures in the earth, creating a fire hazard responsible for much concern in the gas fields.

GAS PLANT AT LAFAYETTE, LA.

SHREVEPORT, La., July 10.—Louisiana Public Utilities Co., will start construction in the near future of a gas plant at Lafayette, La. The plant will be a water gas plant with a high pressure system. Should natural gas become available the company plans to use the natural gas in its lines through the city. The company has leased a building in Lafayette to be used as district offices. J. C. Kuykendall, division superintendent, will be in charge of operations. The company's operations west of Morgan City, will be directed from the Lafayette office.

LOS ANGELES CONCERNS IN GAS LITIGATION

LOS ANGELES, Calif., July 10.—The Southern California Gas Co. has filed an application with the State Railroad Commission for an order declaring that the Los Angeles Gas & Electric Corp. has no right to natural gas or natural gas service from its lines after July 30.

The petition sets forth that the contract expires at midnight of that date, but that the applicant company believes the Los Angeles Gas & Electric Corp. will seek an order of renewal.

It also charges that the Los Angeles Gas & Electric Corp. has entered into a contract for natural gas with the Southern Counties Gas Co. and that the latter company in accordance with the contract, is delivering gas from the Ventura Field to Glendale without the permission of the commission.

The applicant contends "that the Los Angeles Gas & Electric Corp. should not have the right to relinquish service in the summer and call upon the Southern California Gas Co. in winter for a supply at the expense of the consumers who will be furnished the natural gas now going to the Los Angeles Gas & Electric Co."

WEST VIRGINIANS TOUR WYOMING PROPERTIES

West Virginia oil and gas men recently completed a tour of properties in the Rocky Mountain region in which they are interested. A directors' meeting of the Wyoming Gas Co., held at Thermopolis, was attended by E. A. Durham, A. C. Jackson and C. N. Kimball, of Sistersville, W. Va., M. G. Sperry and George M. Hoffheimer of Clarksburg, W. Va., B. D. Keller of Charleston, W. Va., T. K. Bishop of Basin, Wyo., and E. J. Sullivan of Casper, Wyo.

The Wyoming Gas Co. is a distributing company and retails gas for domestic and industrial consumption in the towns of Basin and Greybull. It buys its gas from the Midwest-Wyoming Gas Co. The directors of the Wyoming Gas Co. met with officials of the Midwest Refining Co. at Casper and Denver later.

KANSAS GAS MERGER

TOPEKA, Kans., July 10.—Consolidation of eight gas companies in southwestern Kansas was approved by the Public Service Commission. Under the plan approved the Union Gas Corp. will become the parent organization of the Union Gas & Fuel Co., Southwestern Gas Co., Southwestern Utilities Co., Independence Gas Transportation Co., Southwestern Public Service, Inc, Fredonia Gas Co. and Coffeyville Gas & Fuel Co.

GAS EXHIBITION ABROAD

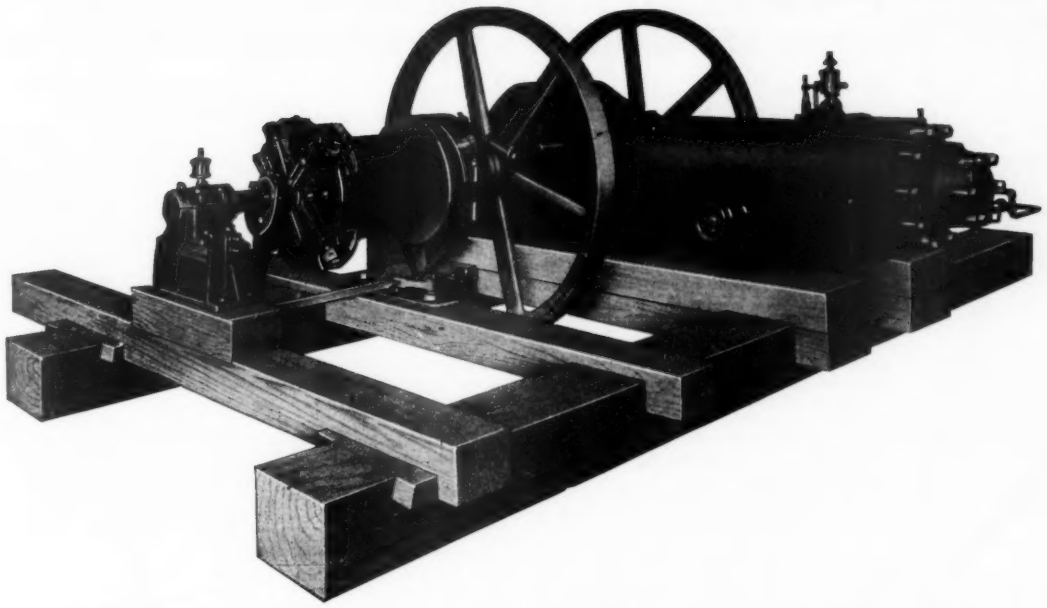
Under the patronage of King Albert I there was recently opened in Antwerp, Belgium, an international gas exhibition, with elaborate exhibits from Belgium, Holland, England, France and other countries.

UPHAM GAS LINE

WELLINGTON, Tex., July 10.—The Hope Construction Co., for the Upham Gas Co., is laying gas pipe in Wellington. There are several crews of men working with the ditching machine and using picks and shovels. The pipe is being placed at a depth of from 3 to 4 feet.

The Upham Gas Co. has established an office in Wellington, which will be known as the Northern Texas Utility Co.

Conservation Service



THE OIL INDUSTRY LEADS IN CONSERVATION
THE KEYNOTE OF
1925 1926

The Oil Industry realizing the enormous savings in drilling with FRANKLIN VALVELESS OIL AND GAS ENGINES readily took to them as one means of Conservation.

Over two hundred FRANKLIN VALVELESS OIL DRILLING ENGINES installed in western fields during 1925 and 1926 to date. One contractor now using fourteen, another using nine FRANKLIN VALVELESS DRILLING ENGINES.

Do you want the names of these Contractors, as well as the names of others using two, three, four and five?

THINK OF IT—The fuel cost per hour to operate a FRANKLIN OIL DRILLING ENGINE is less than one-half the cost of operating a Ford Automobile, running thirty miles per hour, and one-half the cost of Gas where you buy it. Also a great saving in water, which is frequently a greater problem than fuel. Makes better drilling time than with any other cable tool unit.

Wherever FRANKLIN VALVELESS INTERNAL COMBUSTION ENGINES are now marketed, our representatives will furnish you upon call, a factory mechanical expert to demonstrate and assist in the economic use of FRANKLIN VALVELESS INTERNAL COMBUSTION ENGINES. He is your man, at our expense; he'll benefit you.

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ESTABLISHED 1879

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MANUFACTURERS OF FUEL OIL AND GAS DRILLING, PUMPING AND POWER ENGINES
CAST IRON WORKING BARRELS

47 Years of Exclusive, Continuous Oil Field Service

EQUIPMENT AND SUPPLIES

MANUFACTURING RIGHTS ON DRILLING CLAMP

A wire line drilling clamp which the manufacturer states is "the simplest clamp with the greatest gripping power" has recently been placed on the market by Acme Fishing Tool Co. of Parkersburg, W. Va. This clamp was formerly made by Carter Oil Co. in whose shops the first clamp of this type was designed and built by Messrs. Bell and Rogers, from whom it takes its name. Carter

Oil and a number of other related companies used the clamp almost exclusively until their manufacturing plant at Parkersburg was discontined, at which time Acme Fishing Tool Co. secured manufacturing rights and is continuing to supply the original users as well as greatly expanding distribution and sales of the clamps.

The clamp is described as having few parts; being light enough to use on drilling machines yet adequately strong to drill 6,000 feet. The gripping power is 10 times the pressure exerted by the adjusting screw. Special ruggedness is an important characteristic; the manufacturer states none of the clamps have ever broken.

NEW BRANCH FACTORY FOR SOUTHWESTERN CORP.

B. F. Armstrong, sales engineer with the Southwestern Engineering Corp. of Los Angeles, has been transferred to the Mid-Continent office at Tulsa, Okla. He will assist R. B. Millard, district manager there, and will cover the Texas Field for Southwestern.

Due to increased orders, the Southwestern Engineering Corp. announces it has opened a branch factory at Tulsa, Okla., where absorption plant equipment for the Mid-Continent territory will be fabricated, thus insuring better deliveries.

The Roxana Petroleum Corp., operating in the Oklahoma and Texas oil fields, has recently ordered from the Southwestern Engineering Corp. of Los Angeles three portable gasoline absorption plants. On completion of this order the Roxana Corp. will have eight portable plants of this type.

CHANGES IN TIMKEN FORCE

The branch office of the Timken Roller Bearing Service & Sales Co., located at 1033 Cathedral Street, Baltimore, Md., was closed recently. The service requirements of Timken customers in this territory will be supplied through the Richmond, Pittsburgh and Philadelphia branches.

T. F. Rose, formerly assistant branch manager of the Chicago branch of the Timken Roller Bearing Service & Sales Co., has been appointed branch manager of their Cincinnati branch.

The Timken Roller Bearing Service & Sales Co. has appointed H. C. Sauer, branch manager of their Detroit branch. Mr. Sauer was formerly assistant branch manager at Cleveland.

PIPE MILL DELIVERY DELAYED; FIGURING ON LARGEST GAS LINE

By B. E. V. Luty

PITTSBURGH, Pa., July 12. — Demand upon the pipe mills for both merchant pipe and oil country goods has continued at fully the recent rate, and there may possibly have been a slight increase. What is particularly seen is that delivery promises are stringing out. The demand has been somewhat in excess of production, causing business to pile up on mill books.

Two months ago there were delivery promises on some sizes of casing, running up to four or five weeks, but practically prompt shipment was obtainable on most descriptions of oil country goods. Today casing in general has a delivery promise of about a month, while oil well tubing and 2-inch oil line can hardly be had, on new orders or specifications, for delivery even in a month.

Pipe mills have been increasing their operations and are now running full in most departments. The exceptions are a few butt weld furnaces in plants otherwise operating full, and a few small plants that are not regarded as regular capacity, being kept as reserve. There is the Wheeling plant of the National Tube Co., which never made oil country goods to any extent and is virtually replaced by the company's new mill at Gary. The company's Pennsylvania works, in Pittsburgh, long idle, has recently been put in at least partial operation.

Even counting all the capacity physically in existence, the pipe industry is operating at about 90 per cent, and counting only the really effective and efficient capacity the rate is above that. As capacity increased very considerably in the past year or so, the rate of actual tonnage output is decidedly the highest ever attained.

Largest Gas Line

Most mills have line pipe business that will engage them for from one to two months still, and there is an unusually large amount of line pipe business under negotiation. The chief item is an order which when placed will be the largest on record, the tonnage running to six figures. The record thus far has been the Calgary gas line, of three years ago, which involved in the neighborhood of 80,000 tons. The line now being figured on involves 475 miles of 20-inch, from a point in Texas to Kansas City.

The steel trade has departed from precedents, in that it is runing approximately as well this month as last, and probably at less than 15 per cent under its record high rate of last March. Bookings have been increasing continuously since April. They are not yet up to the rate of shipping, and the old business, which has been supplying the difference between bookings and shipments, is nearly played out. There are decided chances that the recent very high rate of production will be maintained.

From the long range viewpoint, the steel industry has been running at an unprecedentedly high rate for a year and a half, yet at the end of the time finds itself in position for indefinite continuance. Necessity for readjustment has not accumulated, as used to be the case. Prices have not risen in this time, but rather have slipped off a trifle, and no stocks have accumulated in buyers' hands.

New Record in Steel

The old idea, that a steel movement could last only so long until readjustment became necessary, does not fit the present circumstances at all. Indefinite continuance is a possibility, and will depend simply upon the state of general business. Last year made a new calendar year record in steel production, the first half of this year ran 8 per cent above the first half of last year, and the present calendar year is practically certain to make a new record in its turn.

Structural shapes are now quotable at 2.00 cents, which means that the $2 a ton advance undertaken several weeks ago has succeeded. The similar attempt in plates has been practically abandoned, plates being still obtainable at 1.90 cents. Bars are to be had at 2.00 cents in carloads and there is no indication of large lots selling at less at the present time.

There has been a very fair pig iron buying movement in the past few weeks, foundries being out of stocks and contracts. Prices did not advance on the buying and the valley market has declined a trifle, being now at the lowest level since December, 1915.

GIGANTIC TANK CAR RECENTLY COMPLETED

The Standard Tank Car Co. of Sharon, Pa., has recently completed the tank car pictured above which is said to be the largest ever built. Eight more are under construction and will be placed in service very soon.

The cars have a capacity of 20,000 gallons and were made for the Jones & Laughlin Steel Corp. They will be used for hauling tar between Woodlawn, Pa., and Pittsburgh, Pa., a distance of 30 miles. The cars have an extreme length of 48 feet and an extreme height of 14 feet 6 inches, and an extreme width of 9 feet 10 inch.

They are of the 7-ring type constructed of 9/16-inch steel throughout and equipped with 16 lines of 2-inch steam heating coils. In addition to the two outlet valves operated from the inside of the tank, there are also two valves operated from the outside. The cars are equipped with three domes in order to secure dome capacity, and each car is equipped with two sets of air brakes.

NEW TRADE BULLETINS

The Celite Products Co. of New York, has issued a booklet entitled "Sil-O-Cel C 3, and Sil-O-Cel C 3 Concrete." The same company has also distributed a booklet entitled "The Logic of Insulation." The latter booklet is unusually interesting and deals with insulation, starting with the basic idea and portraying early developments in attempts to reduce heat radiation losses.

The Worthington Pump & Machinery Corp. of New York, has printed a bulletin No. BK 1607-D on the Worthington locomotive feedwater heater and boiler pump. The book is well written and illustrated.

The Sivyer Steel Castings Co. of Milwaukee, is sending out a series of folders called Sivyer Reports. The most recent is No. 10 and is entitled "The Gentle Art of Buying." It contains many pertinent remarks about the growing "high-pressure" sales methods. This company has also distributed a folder pertaining to the products made by it and the industries which they serve.

The Laclede Christy Co. of St. Louis, Mo., has issued its June Bulletin giving the merits of Laclede-Christy fire bricks and other furnace products.

The Sheet Steel Trade Extension Committee of Pittsburgh, Pa., in its periodical, "Making Markets," contains an interesting article entitled "A Forecast of Steel Office Furniture Sales." It gives a rather unusual picture of the future application of sheet steel to building and building equipment.

The Sullivan Machinery Co. of Chicago, Ill., has sent out two bulletins, No. 76 G, about portable electric single and double drum hoists; and No. 83 B, which is the second edition of a bulletin devoted to Sullivan single and two stage compressors. The former bulletin has been brought up to date and has been amplified with a number of illustrations showing these portable hoists doing various work in industrial, contracting and mining fields. The latter bulletin shows a number of new installation pictures and gives an idea of the extent and spread of the industries by these compressors.

The American Arch Co., Inc., of New York, has closed an agreement whereby it takes over the business of Waite & Davey Co. of Long Island City, makers of air cooled furnace walls. A bulletin circulated by the company shows that the product is applicable to a wide range of furnaces.

IVERSON TOOL COMPANY WILL OPERATE SHOPS

P. M. Iverson, vice president of the Oklahoma Iron Works, and one of the original organizers, who has been associated with it for a period of 22 years, has purchased the branch shops of the International Supply Co., at Borger, Tex., Artesia, N. Mex., Okmulgee and Okemah, Okla., of which Mr. Iverson has been in charge for the past few years.

The shops will be operated under the name of the Iverson Tool Co., with Mr. Iverson as president. S. J. Iverson, of the Artesia Supply Co., is vice president.

H. M. Lundquist, formerly general auditor of the International Supply Co., and Oklahoma Iron Works, is associated with the new company in the capacity of secretary and treasurer.

Compare a Bessemer With Any Other, Point by Point

THERE is only one conclusion possible after a point by point analysis of a Bessemer compressor with others—they are *better* built units with a much higher operating and compression efficiency—horsepower for horsepower, inch for inch displacement.

On both the Two Cycle and Four Cycle units typical Bessemer crosshead construction with adjustable shoes and bearings, is used throughout. All bearings are extra large, all parts are over strength, and the complete units are entirely enclosed with all parts made easily accessible for adjustment or replacement.

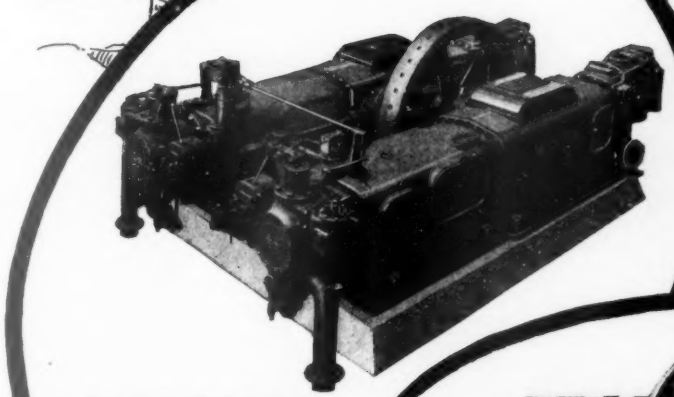
The compressor cylinder is the new, improved Bessemer type used on all Bessemer direct driven compressor units. These cylinders have a compression efficiency unequalled by any other cylinder and they retain their high initial volumetric efficiency without repair or replacement during remarkably long periods of service.

In every detail of engineering and construction, as a point by point operating comparison will show, Bessemer direct driven compressors (both Two Cycle and Four Cycle) are far in advance of even the next best.

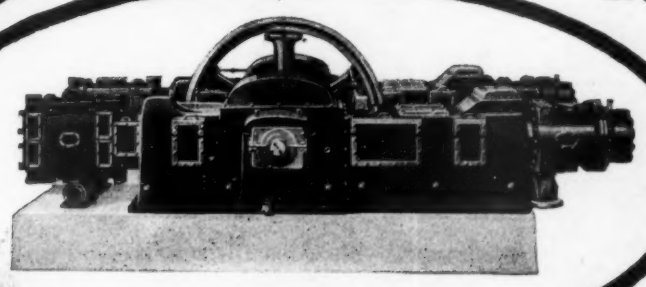
THE BESSEMER GAS ENGINE COMPANY
52 York Street ∴ ∴ Grove City, Pa.

California Distributor
Associated Supply Company
San Francisco—Los Angeles

California Branch
727-728 Standard Oil Bldg.
Los Angeles



Bessemer Four Cycle Compressors have a remarkably simple valve assembly which assures high engine efficiency, low fuel consumption and trouble free service. They are ruggedly built to deliver years of uninterrupted service.



Bessemer Type Ten Two Cycle Compressors are the standard of the natural gasoline industry. Their running time is consistently 99% plus, and their maintenance almost nil.

BESSEMER COMPRESSORS

The Proper Way to get PIPE Suspension

With the *Regan Pipe Suspension & Control Head* it's as simple as A, B, C to retain the desired suspension in the casing strings after making surface landing and casing has been set.....

Regan
Forge & Engineering Co.
San Pedro Quality California

Ask for Instructive Literature

NEW YORK CITY, Evening Post Bldg., 75 West Street HOUSTON, TEXAS, Regan Sales Co., 1521 Post-Dispatch Bldg. TULSA, OKLAHOMA, 227 Mayo Bldg.

Filling Station Growth in Europe

Coming Into General Use in All Larger Cities. Wider Consumption For American Gasoline in Foreign Markets

By L. M. Fanning
New York Bureau, The Oil and Gas Journal, Room 543, 30 Church St., New York

The growth of the motor car in foreign countries is bringing about some radical changes in marketing methods, particularly in European countries, and may result in some important changes in the character of the gasoline marketed abroad. The most significant change in distribution regards the advent of the filling station. Until recently motor fuel was sold direct to automobile users in cans, but now the filling station is coming into general use in all large cities and is even seen in some small hamlets.

Gasoline for export from this country is to all intents and purposes a special product designed to meet the requirements of the high compression motor cars used broad, and for this reason commands a premium over U. S. motor gasoline, which is generally regarded as the standard product in this country. A significant development in the last year and one which is becoming increasingly

Service Station at Milan, Italy.

important is the growing use of American cars in European countries. These are the low compression motor types common in this country and do not require the high test gasoline of usual export grade.

Wider Market for U. S.

With the continued expansion of sale of American cars abroad, oil companies interested in the foreign field believe there is a possibility of a widening market for domestic grade gasoline in foreign countries. Already this tendency is noted in some countries, where more than one grade of gasoline is being marketed. In France two grades of gasoline are now being sold, and on the British Isles a heavier fraction gasoline is available at a price under that prevailing for the lighter gasoline.

Last year 17,570 passenger cars and 4,322 motor trucks and buses were exported from United States ports to the United Kingdom; 5,193 passenger cars and 2,269 motor trucks and buses to Belgium; 8,046 passenger cars and 3,246 motor trucks and buses to Denmark; 1,042 passenger cars to France; 3,623 passenger cars and 549 trucks and buses to Germany; 8,141 passenger cars and 7,419 trucks and buses to Italy; 2,430 passenger cars and 168 trucks and buses to the Netherlands; 6,384 passenger cars and 1,374 trucks and buses to Spain; 3,378 passenger cars and 271 trucks and buses to Sweden. This represents a record year and the rate of shipments so far in 1926 is considerbly higher.

While the volume of this movement does not look large in comparison with the prevalence of the motor car in this country, the figures are significant in relation to the relative small number of automobiles in use in the various European countries. France and England have the largest number of motor vehicles but the aggregate in these two countries is only some 1,600,000 cars, as against a total registration in the United States of 19,954,000 cars.

More American Cars

The United Kingdom shows an automobile registration of 660,734 passenger cars and 242,000 trucks and buses, the rate of American shipments of cars last year being slightly less than 3 per cent of the total passenger car registration and 1½ per cent of the total truck and bus registration. The factor of the American car shows up of more importance in some of the smaller countries. For instance, Belgium has 50,000 passenger cars registered and imports of 8,000 cars represent 16 per cent of the total registration.

The extent to which the increased use of American cars will affect the grade of the gasoline generally marketed in European countries depends, of course, upon how widely American cars gain in popularity. It is not anticipated that any radical change will come about over night. While continued growth in the sales of the American car is looked for, there are many existing handicaps it is meeting, outside of the general factor of the ability of the European to buy.

In most European countries the motorist is taxed on the horse power of his car. This operates against the American car of high horse power as against the low horse power European car. Also, the saving in initial gasoline cost possible in the operation of the American car is offset by the larger mileage possible in the running of the high compression foreign motor car.

Another factor is that the foreign motorist drives and uses his car differently, as is natural considering the somewhat radical differences in the two types. The fast driving in city operation and the great amount of hill climbing in touring is the kind of punishment that the European motorist expects his car to withstand.

In the matter of fuel, also, the lower fraction gasoline might not be suitable for the European car while the export grade gasoline can be used as well by American as by foreign cars, and this is tending to make the marketing of a lower grade gasoline abroad a matter of slow expansion.

Prices Abroad

The price of gasoline, however, has an important relation to the expected great development in the use of the motor car abroad. The fact that a higher grade gasoline is demanded means that at the very start the foreign motorist has to pay more for his fuel. A comparison of this is U. S. Motor gasoline of 58-60, selling at 13½ cents a gallon Bayonne refinery, while bulk export gasoline of 64-66 sells at 16½ cents a gallon, a difference of 3 cents.

Prices in the United States have an important bearing on European gasoline prices, if they do not largely determine foreign prices. European gasoline requirements are estimated to be about 1,300,000,000 gallons annually, and this country supplies about 65 per cent of the total. The following table gives a comparison of gasoline exports from the United States to European countries in 1925 and 1924:

U. S. Gasoline Exports to Eproepan Countries

	1925 Gallons	1924 Gallons
Belgium	48,620,000	40,181,000
Denmark	25,222,000	18,860,000
France	258,003,000	258,414,000
Germany	46,313,000	37,777,000
Italy	44,195,000	39,919,000
Netherlands	37,880,000	28,461,000
Norway	5,877,000	6,728,000
Portugal	3,425,000	3,878,000
Spain	28,325,000	31,399,000
Sweden	20,125,000	20,501,000
United Kingdom	345,950,000	369,310,000
Total	863,935,000	855,428,000

Duty on Gasoline

Practically all European nongasoline producing countries, except Great Britain, levy an import duty on gasoline, which, added to the increased cost of the higher grade product and to transportation, further establishes the higher relative price level of gasoline to the foreign consumer.

A compilation of recent prices shows that when gasoline in this country was averaging, including state taxes which vary from 1 to 5 cents a gallon, 24½ cents a gallon, the following prices in United States cents per gallon were prevailing in the principal cities of European countries:

	Gasoline Per Gal.
Austria	33c
Belgium	30c
Czecho-Slovakia	36c
Denmark	33c
Finland	36c
Germany	32c
Holland	30c
Hungary	34c
Italy	43c
Norway	35c
Spain	34c
Sweden	37c
Switzerland	36c
Portugal	35c
United Kingdom	32c

Transportation represents one of the most important factors in the difference with United States prices noted, with the other elements mentioned contributing, but archaic marketing methods have an important bearing on the higher prices prevailing abroad, and the rapid relegation of the antiquated method of selling gasoline in cans for the modern filling station method is one of the most encouraging signs.

It is generally recognized that a popularization of motor cars abroad such as has occurred in this country is greatly handicapped by the high cost of gasoline but as filling station distribution becomes general the motorist will get the benefit of the reduced cost in handling the product and lower relative prices will result.

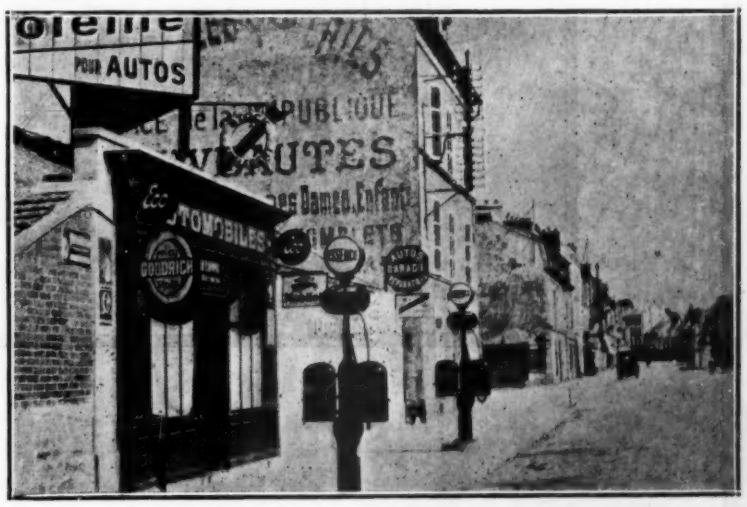
Pump Distribution Growing

While it would appear that European countries have been unusually slow in adopting modern gasoline distribution methods, the explanation lies chiefly in the fact that widespread popular use of the motor car has not occurred and is only just beginning. Marketing of gasoline in cans is an outgrowth of kerosene marketing methods established in the early days of the industry. The handling of gasoline, particularly in Great Britain, has been surrounded by all kinds of safety regulations contained in city ordinances and prejudices have had to be overcome in developing bulk distribution methods. There are now regulations in all parts of Europe against gasoline pumps but progress is being made in convincing officials that this has been found to be the safest method of handling motor fuel.

A general pump distribution of gasoline in European countries will not mean any important change in gasoline exportation methods from this country. Gasoline is generally shipped in bulk to European coastal terminals where the familiar five-liter cans are filled and sent out into the retail trade.

The relation of American gasoline to European markets is undergoing considerable change because of the increased quantities of Russian, Rumanian and Polish gasoline getting into the trade, and because of the increased amount of Persian crude being refined in Great Britain, the gasoline product of which is

(Continued on Page 76)



Gasoline pumps on sidewalks of street in town in France.

You CAN Get

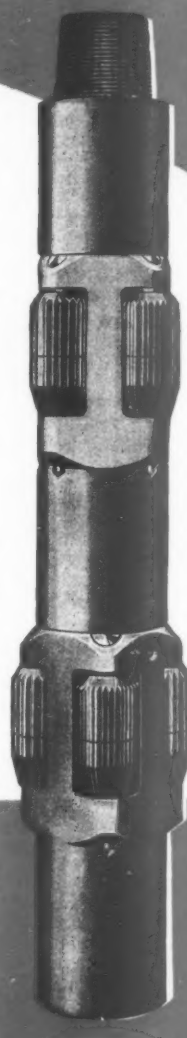
A Straight, Full-Gauge Hole Without Slowing Up Your Disc Bit

A Reed Double Three-Point Reamer or a Reed Double Four-Point Reamer following your disc bit will do away with tight hole troubles, and insure a straight, round, full-gauge hole into which casing will slip as though greased.

Since the Double Three-Point Reamer leaves 35% of the hole clear and the Double Four-Point Reamer 28% of the hole clear, there is ample passageway for the movement of slush; and the operation of either of these reamers behind a disc bit does not hinder or slow up the drilling in the least.

Many operators are now using Reed Reamers directly behind their fishtails—and thus avoiding a special trip to ream down the hole before setting casing.

These tools are being extensively used throughout Oklahoma and California, and operators and contractors are enthusiastic over the results secured.



Note ample passageway for slush—35% of hole left clear.

This reamer gives four-point contact and leaves 28% of hole clear.

Reed Reamers

Double Three-Point
Double Four-Point

Reed Roller Bit Co.

HOUSTON LOS ANGELES

GULF PORT SHIPMENTS INCREASE 1,921,041 BARRELS DURING MAY

By P. L. McGreal

HOUSTON, Tex., July 10.—The vessel shipments of refinery products and crude from the Gulf ports during the month of May total 16,185,402 bbls., an increase of 1,921,041 bbls. over the month of April.

Refinery products aggregated 9,931,235 bbls., representing an increase of 1,373,944 bbls. and crude consignments were 6,254,167 bbls. or 547,097 bbls. over April. The Crown Central Petroleum Corp., the Sun Co., or Keen & Wolfe Co. are not represented in the May shipments.

The export movement of both refined and crude was 2,787,766 bbls., an increase of 979,058 bbls. over April. Consignments of refined cargoes aggregated 2,487,561 bbls., an increase of 732,915 bbls., while foreign consignments of crude were 300,205 bbls., an increase of 246,143 bbls.

The Port Arthur-Beaumont district shipped more than 50 per cent of the gross tonnage during May. More than 3,375,000 bbls. went out from New Orleans and Baton Rouge, the balance being shipped from plants on the Texas City-Houston ship channels.

The Standard of Louisiana was the heaviest shipper, the Humble Oil & Refining Co. coming next with a total of 3,629,821 bbls. of both refinery products and crude. The Gulf Refining Co. handled 2,694,621 bbls. The Texas Company's loading totaled 1,838,336 bbls. and those of the Magnolia Petroleum Co. 1,531,776 bbls.

Standard Oil affiliations handled 9,934,229 bbls. of the gross consignments coastwise and 2,020,149 bbls. of the total export shipments from the Gulf ports.

The shipments by companies are as follows:

FROM PORT ARTHUR

By The Texas Company

Refined

Destination—	Gross Bbls.
Coastwise	1,230,884
Export	441,038
Total	1,671,922

Crude

Coastwise	128,545
Export	37,869
Total	166,414

By Gulf Refining Co.

Refined

Coastwise	2,464,798
Export	71,844
Total	2,536,642

Crude

Coastwise	157,979

FROM BEAUMONT

By Magnolia Petroleum Co.

Refined

*Coastwise	1,478,245

Crude

*Coastwise	53,531

*Magnolia Co. makes no division of shipments between coastwise and export.

FROM TEXAS CITY
By Vacuum Oil Co.
Crude

Coastwise	448,703

By Swiftsure Petroleum Co.
Crude

Coastwise	117,401

FROM ATRECO
By Atlantic Oil Producing Co.
Refined

Coastwise	229,907

Crude

Coastwise	368,959

FROM PORT ARTHUR
By Atlantic Oil Producing Co.
Crude

Coastwise	129,960

FROM SMITH'S BLUFF
By Atlantic Oil Producing Co.
Crude

Coastwise	106,249

FROM BEAUMONT
By Atlantic Oil Producing Co.
Crude

Coastwise	53,631

FROM HOUSTON (Galena)
By Galena-Signal Oil of Texas
Refined

Coastwise	202,000
Export	28,000
Total	230,000

FROM HOUSTON
By Deepwater Refineries
Refined

Export	15,000

FROM TEXAS CITY
By Marland Oil & Refining Co.
Refined

Export	106,289

Crude

Coastwise	440,525
Export	106,287
Total	546,815

FROM NEW ORLEANS (Storage)
By Standard Oil Co. of Louisiana
Refined

Export	82,451

FROM BATON ROUGE (Refinery)
By Standard Oil Co. of Louisiana
Refined

Coastwise	917,826
Export	1,190,837
Total	2,108,663

Crude

Coastwise	1,188,893

FROM NECHES TERMINAL (Orange)
By Humble Oil & Refining Co.
Crude

Coastwise	273,519

FROM TEXAS CITY
By Humble Oil & Refining Co.
Crude

Coastwise	884,363

FROM BAYTOWN (Refinery)
By Humble Oil & Refining Co.
Refined

Coastwise	606,516
Export	552,102
Total	1,158,618

Crude

Coastwise	1,156,972
Export	156,049
Total	1,313,021

FROM HOUSTON
By Sinclair Oil & Refining Co.
Refined

Coastwise	313,498

Crude

Coastwise	444,429

SUMMARY

Water shipments of refined and crude from Gulf Ports during May, 1926

Company and Port—	Refined	Crude	Total
The Texas Company, Port Arthur	1,671,922	166,414	1,838,336
Gulf Refining, Port Arthur	2,536,642	157,979	2,694,621
Magnolia Petroleum Co., Beaumont	1,478,245	53,531	1,531,776
Atlantic Oil Producing Co., Atreco	229,907	368,959	598,866
Atlantic Oil Producing Co., Port Arthur	.....	129,960	129,960
Atlantic Oil Producing Co., Smith's Bluff	.....	106,249	106,249
Atlantic Oil Production Co., Beaumont	.....	53,631	53,631
Humble Oil & Refining Co., Neches Terminal	.....	273,819	273,819
Humble Oil & Refining Co., Texas City	.....	884,363	884,363
Humble Oil & Refining Co., Baytown	1,158,618	1,313,021	2,471,639
Vacuum Oil, Texas City	.....	448,703	448,703
Marland Oil & Refining Co., Texas City	106,289	546,815	653,104
Swiftsure Petroleum Co., Texas City	.....	117,401	117,401
Sinclair Oil Refining Co., Houston	313,498	444,429	757,927
Galena Signal Oil, Houston	230,000	.....	230,000
Deepwater Refining, Houston	15,000	.....	15,000
Standard of Louisiana, New Orleans	82,451	.....	82,451
Standard of Louisiana, Baton Rouge	2,108,663	1,188,893	3,297,556
Total for May	9,931,235	6,254,167	16,185,402
Total for April	8,557,291	5,707,070	14,264,361
Difference	1,373,944	547,097	1,921,041
Exports			
The Texas Company, Port Arthur	441,038	37,869	478,907
Gulf Refining Co., Port Arthur	71,844	.....	71,844
Galena-Signal, Houston	28,000	.....	28,000
Deepwater Refining, Houston	15,000	.....	15,000
Marland Oil Refining, Texas City	106,289	106,287	212,576
Humble Oil & Refining Co., Baytown	552,102	156,049	708,151
Standard of Louisiana, New Orleans	82,451	.....	82,451
Standard of Louisiana, Baton Rouge	1,190,837	.....	1,190,837
Total for May	2,487,561	300,205	2,787,766
Total for April	1,754,646	54,062	1,808,708
Difference	732,915	246,143	979,058

Lightning Well Tools and Pumping Specialties

Wire Line Beam Hanger

Full adjustment of Mule Head.
Quick, detachable rope end.
All steel quick release grip.
Swivel self oiling steel yoke casting on beam.
This hanger may be used with or without the straight lift rope guides and is so priced.
Will handle a stroke 7 feet long.
Weight, 290 lbs.

Sucker Rod Rotator

Designed for use with Lightning Hanger, but works with almost any make of hanger, constructed almost entirely of steel—rotates on heavy duty ball bearing. Friction disk eliminates danger of twisted rods. 100 teeth on ratchet so that a very small degree of turn may be made or as much as 1-16 of turn as desired. Perfect, simple and dependable.

Weight, 180 pounds

Sucker Rod Spider and Bell Nipple Combined
Open and Closed

With this you need only one elevator and save 50% of your pulling time. Action automatic and sure. 2-in., 10 lbs.; 2½-in., 15 lbs. Note high speed elevator below.

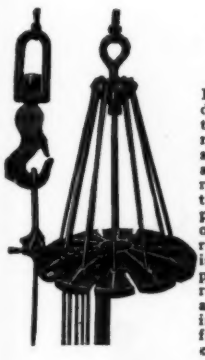
High Speed Elevator

For use with Sucker Rod Spider. The most satisfactory rod pulling outfit made. Avoids bent rods and lost time. Rods cradle in elevator body and will not kink or release accidentally. Snaps on as naturally as placing your hat on your head.

Light pattern, 12 lbs.
Heavy pattern, 15 lbs.

Stuffing Box

The lightning T. S. Lubricator Stuffing Box satisfies under the most adverse conditions.



Rod Rack Turns on Ball Bearings

Rods may be placed directly from elevator to rack, saving much time. Holds 66 strands in perfect alignment and being round may be easily turned to any desired position. All danger of bent or kinked rods eliminated as it is only necessary to pull and hang the rods. A time saver, and should be placed in all derricks where frequent pulling occurs.

Manufacturers of

Pumping Powers,
Geared and Band Wheel
Stuffing Boxes
Steel Grips
V-Swings, Jacks
Polished Rod Rotators
Casingheads
Casing and Tubing Hooks
Polish Rod Clamps

Stocks for Delivery at These Points:

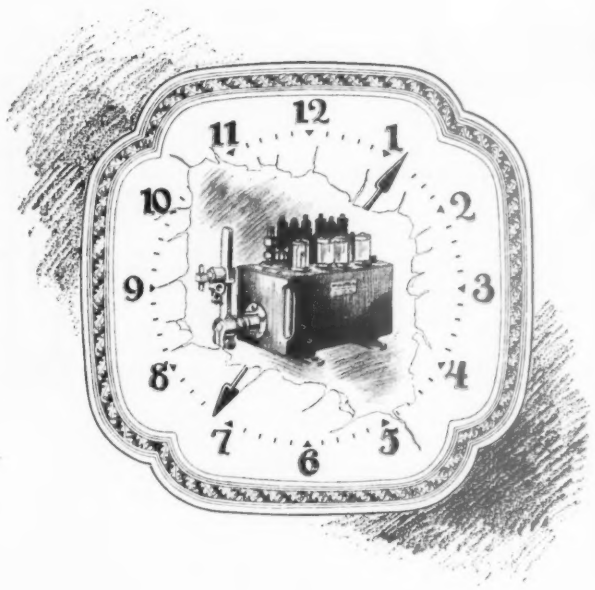
Wichita Falls, Texas
GROVER C. JOHNSON
Tulsa, Oklahoma
B. V. EMERY & CO.
Casper, Wyoming
GENERAL ENGINEERING CO.
Bradford, Pennsylvania
COMBINATION ENG. & COM. CO.
ALL REPUBLIC SUPPLY STORES
Houston, Texas
HARRY B. SHINE
ALL INTERNATIONAL SUPPLY COMPANY STORES
Putnam, Texas
PUTNAM SUPPLY COMPANY,

Write for showing of full line.

Kansas City Hay Press Co., Kansas City, Missouri

XUM

Now, Then and Always



Morning, noon and night your McCord lubricator is on the job, delivering fresh live oil the moment a wheel turns and continuing to do so as long as the engine, pump or drilling unit operates.

McCord lubricators never forget, that's why engines, drilling and pumping units equipped with McCords, have fewer breakdowns and are thus able to maintain maximum production.

Production lost as the result of breakdowns can never be regained. Insure against delays and lost time, the result of breakdowns, by specifying McCord lubricators, on new equipment as well as installing them on the engines, drilling and pumping units you now operate.

Your National Supply salesman will give you complete information, or write for a catalog.

Distributed in the oil fields by

The National Supply Co.

ALL BRANCHES

McCord

force feed

Lubricators

Standard of the Oil fields

McCord Radiator & Mfg. Co., Detroit

LUBRICATOR DIVISION

GROWTH OF FILLING STATIONS IN EUROPE

(Continued from Page 73)

being given wide distribution in England and in some of the Continental countries.

European Gasoline

The United States Commerce Department notes the steadily increasing growth of the British petroleum refining industry in 1925 in a study of the British petroleum trade in 1925. As a result of this development, the character of the import trade is changing. The British are beginning to increase their foreign purchases of crude petroleum at the same time lessening those of refined products. This trend, which probably is destined to grow in direct ratio to the development of the domestic refining industry, is one of considerable interest to American exporters in view of the fact that Great Britain has long been the largest individual market for American refined products.

Great Britain, the report reveals, obtains almost half of its crude petroleum from the Persian fields with Curacao and Mexico supplying a considerable portion of the remainder. Imports of crude petroleum from the United States are insignificant. However, while this country plays but a minor role in the crude petroleum trade of Great Britain, a study of the figures for imports of refined products discloses the dominance of the United States in this field. Last year 47 per cent of the gasoline, 58 per cent of the kerosene, 80 per cent of the gas oil, 24 per cent of the fuel oil and 85 per cent of the lubricants imported into Great Britain came from the United States. With the exception of fuel oil, every one of these individual items shows a decline compared with 1924.

Reference to the table presented earlier in this article showing United States exports of gasoline to European countries shows that while there was a slight gain in the total for 1925 as compared with 1924, there was a loss in shipments to Great Britain and that shipments to France, the second largest customer, were practically unchanged.

Increased competition of gasoline from foreign sources is expected as motor car use in Europe expands and it is not anticipated that American gasoline will continue to supply as large a percentage of the total as it has previously done, but except in the event of a shortage of supply to meet the mounting home consumption, the volume of American gasoline sold in Europe should not show any appreciable falling off, and any gasoline surplusage in this country will find a growing outlet in the expanding foreign markets.

NEW OIL CAPITAL

Thirty-eight new oil companies with a total capital of $73,316,000 were organized in the United States during June, according to figures compiled. This capitalization represents an increase over the corresponding month last year, which totaled $29,847,000, but shows a decline from May, 1926, which had a total capitalization of $114,811,000.

OIL USING VESSELS

WASHINGTON, D. C., July 10.—During June, there were built in the United States, 157 steam, motor, sail and unrigged vessels of 22,819 gross tons, of which, 41 of a gross tonnage of 3,551 tons, were built for the use of fuel oil and 74 of 2,135 gross tons, were for gasoline as the motor power.

OIL MAN STABBED AT TAMPICO

Mordel Vincent, general manager of the Atlantic, Gulf and West Indies Petroleum Co., (reported in Mexico City dispatches to have been stabbed to death by an unknown man) is suffering from a stab wound in the abdomen. His condition is not critical. He was attacked in his room by an unknown assailant, presumably a thief.

A. P. I. Will Meet December 7, 8, 9, in Mayo Hotel in Tulsa

The American Petroleum Institute will hold its next annual meeting in Tulsa on Tuesday, Wednesday and Thursday, December 7, 8 and 9, of this year.

All sessions will be held in the Mayo Hotel. The local arrangements for the meeting are in the hands of a committee of resident oil men. E. B. Reeser, president of the Barnsdall Corp., is chairman of the general committee of arrangements and the following subcommittees have been appointed:

Entertainment: D. E. Buchanan, vice president, Chestnut & Smith Corp., as chairman.

Automobile transportation: P. M. Miskell, manager, Empire Refineries, Inc., as chairman.

Hotel accommodations: W. C. Franklin, vice president, Tidal Oil Co., as chairman.

Finance: W. G. Skelly, president, Skelly Oil Co., as chairman.

This general committee plans, in cooperation with Tulsa hotels, for its subcommittee on hotel accommodations to receive applications for and make assignments of hotel and room accommodations. Request for inquiry about hotel and room accommodations should be addressed to W. C. Franklin, chairman committee on hotel accommodations, room 504, Cosden Building, Tulsa.

HUMBLE BUILDS HOUSES FOR TORSION BALANCES

LOCKHART, Tex., July 9.—The plant of the Humble Oil & Refining Co. here that makes the houses for the torsion balance machines shipped two houses to Liberty this week and have several more ready for shipment to various places in Texas, where the Humble has the Hungarian machines. A total of 14 houses have been built here since the plant was established and the plant also keeps in repair the houses that become damaged in service. It is understood that the Standard Oil Co. will take over practically the job of furnishing the houses complete to four of the major oil companies of Oklahoma and they will be built in Lockhart.

It is said that the Humble has a dozen more of the Hungarian torsion balance machines and as it takes four houses to each machine, it will be seen that the plant here will become quite a building proposition with taking care of their own work, and the other companies. The torsion balance crews, among whom are many Lockhart men, have been in Best and that vicinity, will be moved to Sutton County at once and the plans are for about three months work in that section of the State. There are from 50 to 100 men in each party.

Messrs. Templeton, Wolfson and Berlet all of Houston, are managing the torsion balance department for the Humble in Texas.

DONALD BAILEY DEAD

Donald Bailey, oil producer, died in a Tulsa hospital Wednesday, following an operation for appendicitis. He was 48 years of age.

Mr. Bailey was born in Sandy Lake, Mercer County, Pennsylvania, and spent his boyhood and youth in the western Pennsylvania oil region. He graduated from the law school of the University of Michigan in 1906 and for the next six years was engaged in mining operations in Canada and California.

In 1913, Mr. Bailey came to Oklahoma and began the practice of law and later became an oil operator in the Boynton and Bird Creek districts in Oklahoma and in the north Texas shallow fields. His widow, Mrs. Rose A. Bailey, one son, Paul Bailey, his father, T. S. Bailey of Sandy Lake, and two brothers, Frederick W. of Tulsa, and James A., of Edgewood, Pa., survive him. He was a Mason of high degree.

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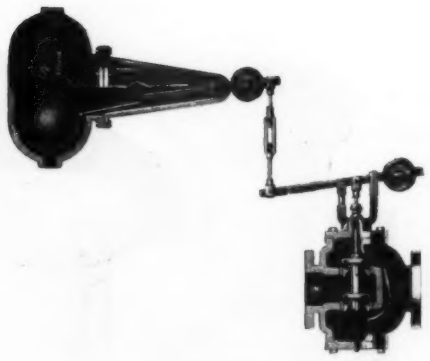
The four types listed on this page are designed to render highest efficiency.

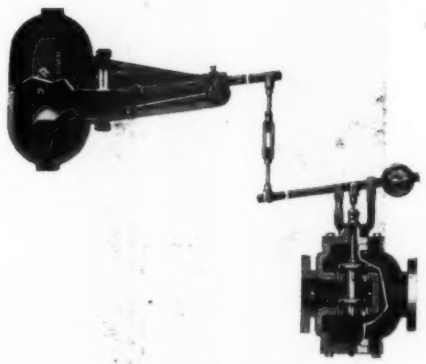
They have been tested out under the most exacting conditions. And in every case they have proven their outstanding superiority.

There's a Fisher Liquid Level Control to handle your problem. Write us regarding it.



TYPE 227A

Will handle any liquid and is made for pressures up to 400 lbs.



TYPE 229

Will handle any liquid. Made for temperatures up to 750° and pressures up to 400 lbs. Equipped with float that equalizes pressure inside.

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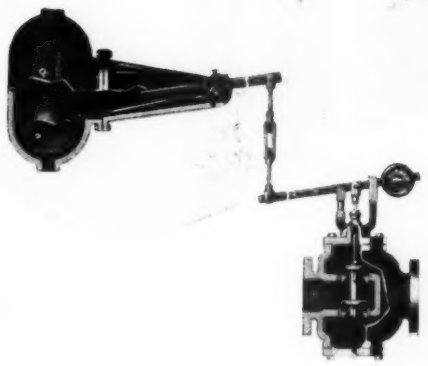
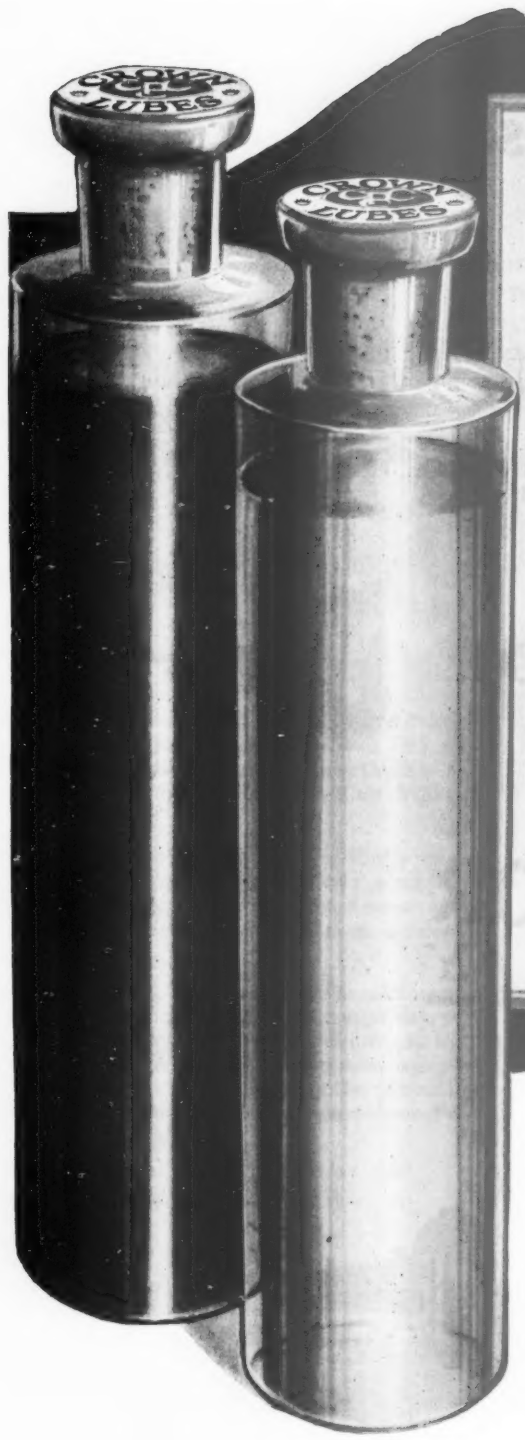
TYPE 221

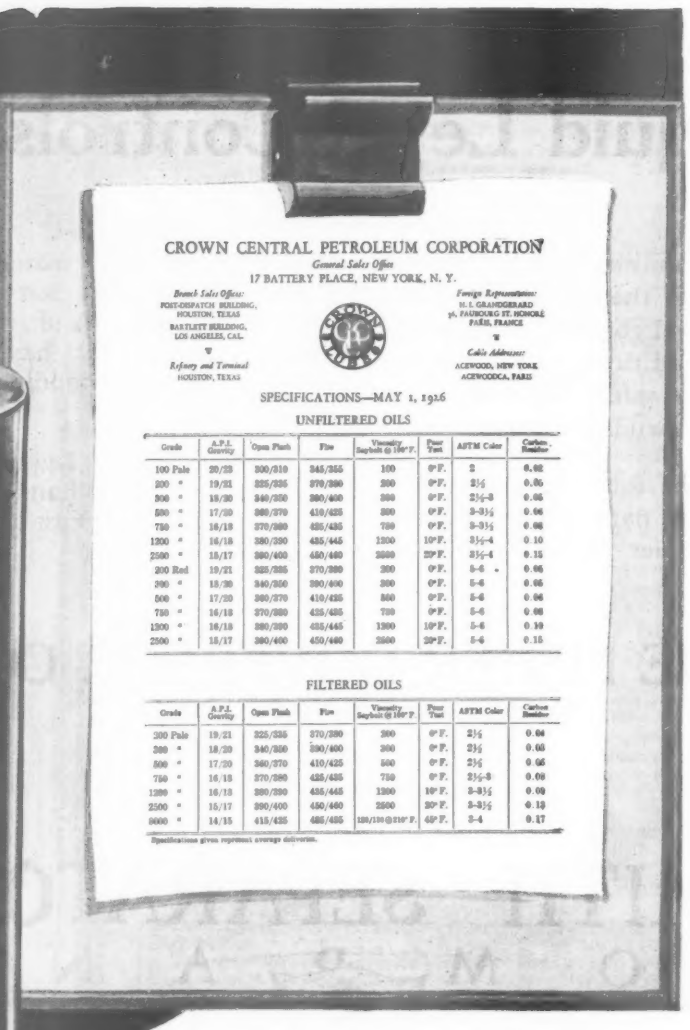
Float cage with liquid level indicator. Accurate gauge of liquid in any tank or container.



TYPE 228

Will handle different liquids at various pressures, separating two of different specific gravity, such as water and gasoline.





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SPECIFICATIONS—MAY 1, 1926

UNFILTERED OILS

Grade	A.P.I. Gravity	Open Flash	Fire	Viscosity Saybolt @ 100° F.	Pour Test	ASTM Color	Carbon Residue
100 Pale	20/23	300/310	345/355	100	0° F.	2	0.02
200 "	19/21	325/335	370/380	200	0° F.	2½	0.05
300 "	18/20	340/350	390/400	300	0° F.	2½-3	0.05
500 "	17/20	360/370	410/425	500	0° F.	3-3½	0.06
750 "	16/18	370/380	425/435	750	0° F.	3-3½	0.08
1200 "	16/18	380/390	435/445	1200	10° F.	3½-4	0.10
2500 "	15/17	390/400	450/460	2500	20° F.	3½-4	0.15
300 Red	19/21	325/335	370/380	300	0° F.	5-6	0.05
500 "	18/20	340/350	390/400	500	0° F.	5-6	0.05
750 "	17/20	360/370	410/425	750	0° F.	5-6	0.06
1200 "	16/18	370/380	425/435	750	0° F.	5-6	0.08
2500 "	16/18	380/390	435/445	1200	10° F.	5-6	0.10
	15/17	390/400	450/460	2500	20° F.	5-6	0.15

FILTERED OILS

Grade	A.P.I. Gravity	Open Flash	Fire	Viscosity Saybolt @ 100° F.	Pour Test	ASTM Color	Carbon Residue
300 Pale	19/21	325/335	370/380	300	0° F.	2½	0.04
300 "	18/20	340/350	390/400	300	0° F.	2½	0.05
500 "	17/20	360/370	410/425	500	0° F.	2½	0.05
750 "	16/18	370/380	425/435	750	0° F.	2½-3	0.08
1200 "	16/18	380/390	435/445	1200	10° F.	3-3½	0.09
2500 "	15/17	390/400	450/460	2500	20° F.	3-3½	0.13
9000 "	14/15	415/425	485/495	120/130@210° F.	40° F.	3-4	0.17

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More Completions, But Smaller Wells

No Field Like Smackover to Abnormally Increase Initial Production As in the First Half of Last Year

By Charles E. Bowles
Petroleum Analyst, The Oil and Gas Journal

From the standpoint of the effort to find new supplies of crude oil the outstanding fact of the present situation is the unusual number of "new operations," the number of new oil wells being completed and the substantially smaller total initial daily production that has thus far this year resulted from all of this effort.

The next few months will see the peak of the Panhandle—and very probably the peak for the United States for 1926. But in comparing the results from the search for "new oil" in 1926 with 1925, both in the Mid-Continent and outside, the fact remains that 1926 has, thus far, produced very much less new oil than 1925.

These relative results are clearly shown in Graph 2 for the Mid-Continent and in Graph 3 for all of the rest of the United States.

It is extremely interesting to note that in the Mid-Continent (Graph 2) more oil wells (Line 1) were completed in the first six months of 1926 than in the first half of 1925. But we have had no "Smackover" in 1926 to boost the new production as we had in 1925 (Line 5).

Thus far in 1926 April shows the most "new oil" in the Mid-Continent—about 190,000 bbls. during the month. New oil in May was less than in April—and June was less than in May. Under no circumstances can we expect that the Panhandle's peak during the later months of 1926 will push the initial daily production (Line 5 Graph 2) up to the heights it reached in 1925. And as this "new oil" has a very direct bearing on the total production for the year, all indications thus far this year point to a substantially less total production of crude oil in 1926 than in 1925.

The Mid-Continent (not including the Gulf Coast and southwest Texas) still continues to produce more crude oil than all of the other fields in the United States combined. The output of the Mid-Continent as compared with the rest of the United States is clearly shown by Lines 2 and 3 of Graph 4. It is interesting to note that while California (Line 4) and Oklahoma (Line 5) are running along about the same as in 1925, Texas declined for a year until the Panhandle started (Line 6) upwards in May. That the Panhandle cannot put a "hump" in the Texas line (6) comparable with the hump that Smackover put in the Arkansas line (7) in 1925 seems a foregone conclusion. Taken all in all the present crude oil production situation is most promising for the year 1926 as a whole.

Unusual Gasoline Situation

Graph 5 shows an unusual gasoline situation in the large excess of demand over supply for May, with a withdrawal of 124,000,000 gallons from storage. In checking over the six months of 1925 during which the demand for gasoline exceeded the supply, we find that in July, the month of greatest consumption, the demand was only 84,000,000 gallons more than the supply. In 1926 the season, at least six months long, during which the demand for gasoline will exceed the supply, has been lauched very auspiciously—and if the space between Lines 4 and 5 of Graph 5 continue as wide apart during the next few months as in May, gasoline stocks, in the late fall of 1926, will be low enough to bring about a highly satisfactory situation for the refiners.

The fuel oil situation (Line 3 of Graph 5) seems to be solving itself, as the first five months' output of the entire country compares very favorably with the first part of 1925.

Kerosene Stocks Start Climb

Line 7 of Graph 5 shows that the total stocks of kerosene in the entire country are again beginning their upward climb as compared with the monthly output, Line 6.

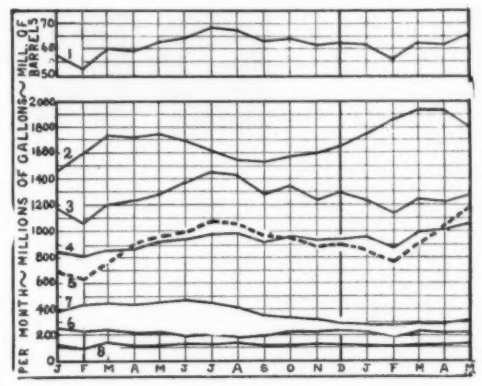
Taken as a whole, the situation reflected by Graph 5 for the early months of 1926 is decidedly better than for the same period of 1925.

The "changes in storage" of crude oil and refined products continued favorable during May with a reduction of 2,415,000 bbls. in pipeline and tank farm stocks—a reduction of 1,377,000 bbls. in stocks of refined products—but with an addition of 1,279,000 bbls. to stocks of crude oil at refineries. Deducting this increase in crude at refineries from the decrease in tank farm stocks leaves a net reduction in crude stocks of about 1,200,000 bbls.

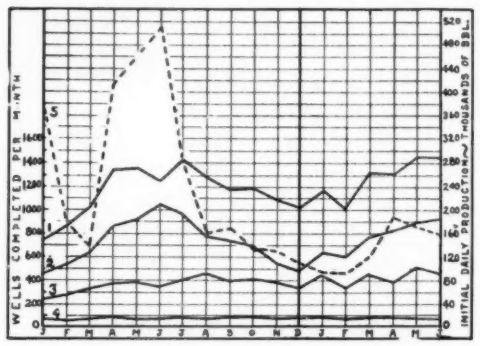
Reassuring Reduction in Stocks

Some idea of the great improvement of May, 1926, over May, 1925, can be had by referring to Graph 6 and comparing the relative position of Lines 1, 2 and 3 in 1926 with 1925, either for the month of May or for any preceding month.

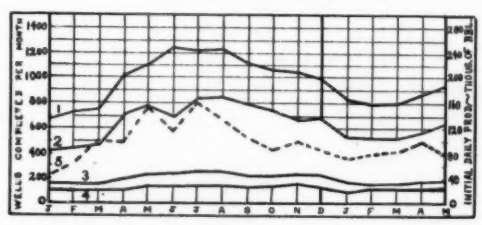
(Continued on Page 86)



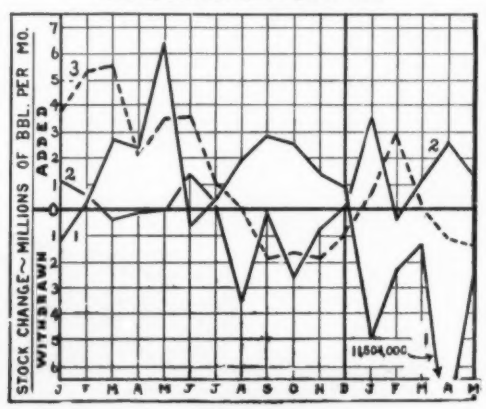
Graph 5—Refinery operations. Line 1, crude oil (domestic and foreign) run to stills. Line 2, gasoline stocks. Line 3, fuel oil production, entire country. Line 4, gasoline supply (production plus imports). Line 5, gasoline demand (domestic demand plus exports). Line 6, kerosene production. Line 7, kerosene stocks. Line 8, lubricating oil production.



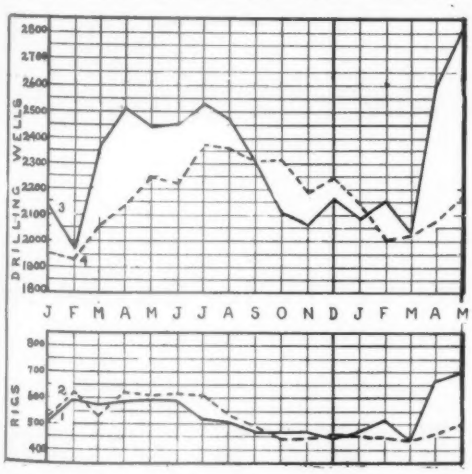
Graph 2—Wells completed in Mid-Continent. Line 1, total wells completed. Line 2, oil wells. Line 3, dry holes. Line 4, gas wells. Line 5, initial daily production (read scale on right hand side.)



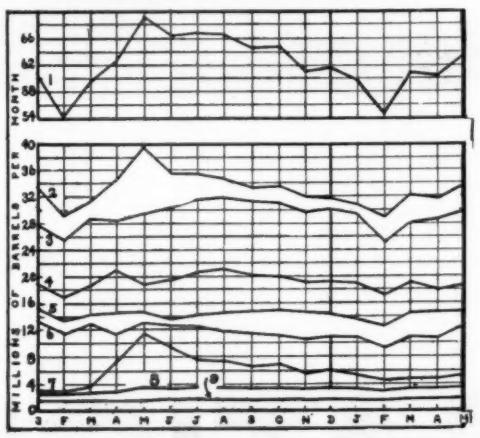
Graph 3—Wells completed outside Mid-Continent. Line 1, total wells completed. Line 2, oil wells. Line 3, dry holes. Line 4, gas wells. Line 5, initial daily production (read scale on right hand side).



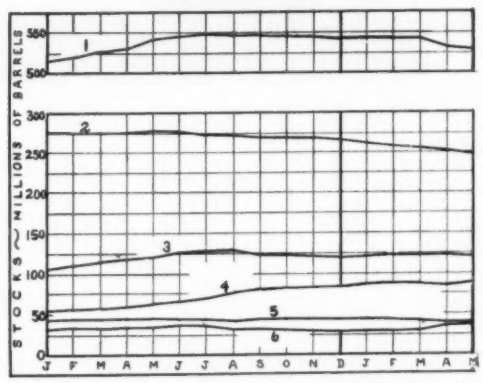
Graph 6—Additions to and withdrawals from storage. Line 1, pipeline and tank farm stocks for entire country and including fuel oil in California. Line 2, crude oil at refineries east of California. Line 3, refined products at refineries for entire country, but not including fuel oil in storage in California. Please note, this graph shows "changes in amount" of different items in storage from month to month. Changes are reckoned from the zero (0) line each month.



Graph 1—New operations. Line 1, rigs in Mid-Continent. Line 2, rigs outside Mid-Continent. Line 3, drilling wells in Mid-Continent. Line 4, drilling wells outside Mid-Continent.



Graph 4—Production of crude oil. Line 1, total for United States. Line 2, Mid-Continent. Line 3, outside Mid-Continent. Line 4, California. Line 5, Oklahoma. Line 6, Texas. Line 7, Arkansas. Line 8, Kansas. Line 9, Louisiana.



Graph 7—Petroleum stocks. Line 1, total stocks for entire United States of crude oil finished and unfinished products. Line 2, pipeline and tank farm stocks east of California. Line 3, refined products at all refineries, but not including fuel oil in storage in California. Line 4, heavy crude oil and fuel oil in storage in California. Line 5, light crude oil in storage in California. Line 6, crude oil at refineries east of California.

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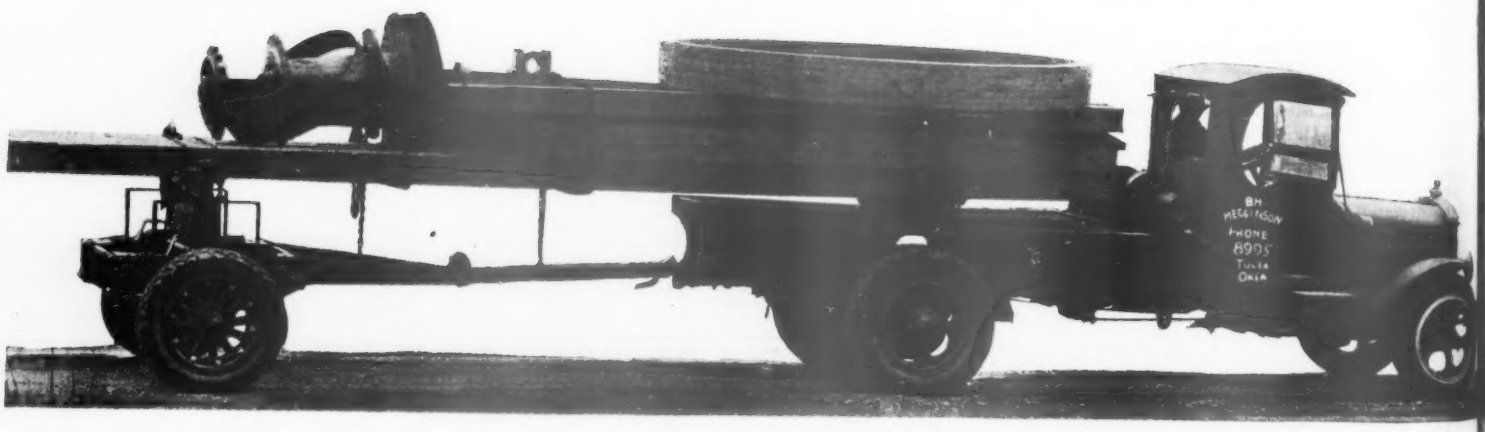

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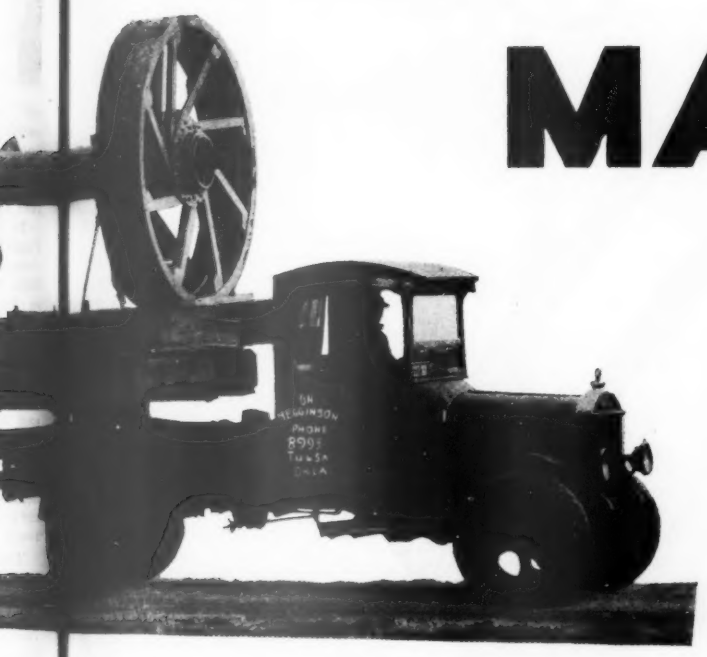

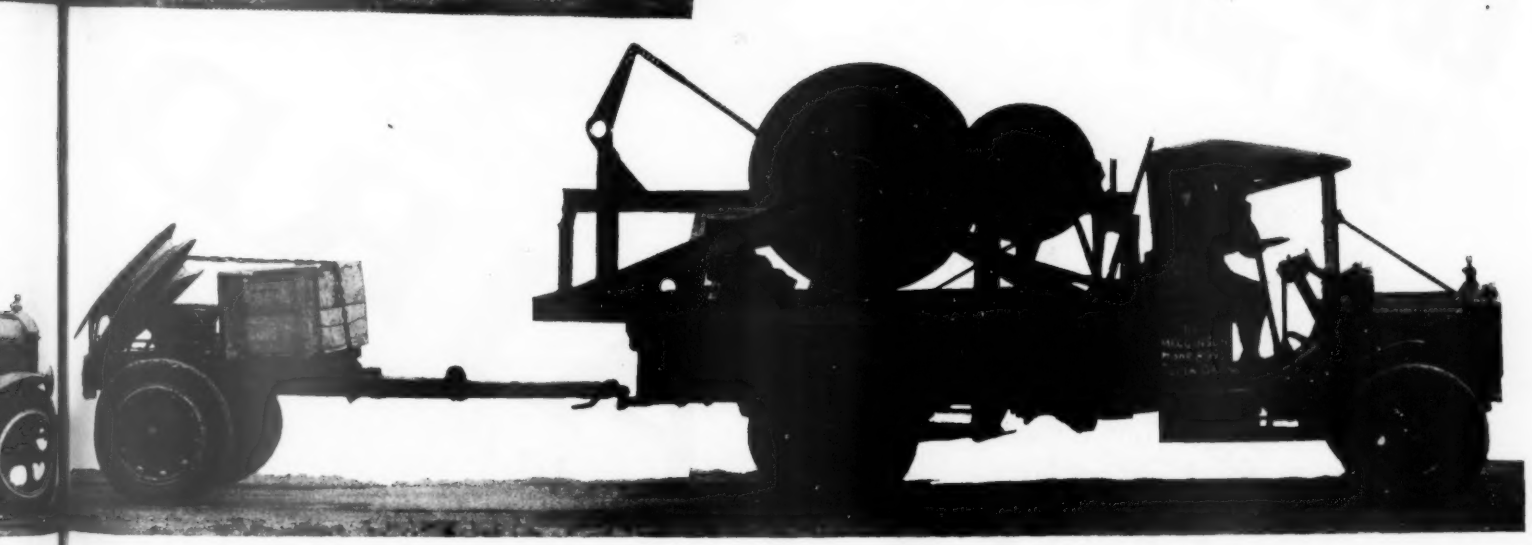

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There is a vast difference between the newer oil fields and those of several years ago—a difference of many hundreds of feet in depth, and much improvement in equipment.

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904 Mid-Continent Bldg., Tulsa
FOR SALE BY ALL LEADING SUPPLY HOUSES

EASTERN FIELDS

(Continued from Page 62)

On Whites Creek, Union district, Wayne County, the Chartiers Oil Co. has the rig completed and started to drill a test on the Ella McGhee farm, 900 feet north of its production on the Pauline Millinder farm. On Mud River, Carroll district, Lincoln County, 2,000 feet west of the Transylvania Petroleum Co.'s test on the B. L. Maddox farm, Meabon & Huffman have completed and shot in the Berea grit No. 1 on lease No. 3 of the C. Gillenwater farm. It is a gasser good for 200,000 feet.

Putnam County

On the waters of Poplar Fork, Scott district, Putnam County, Kirtley & Keller have completed a second test on the H. H. Pine farm. It is a duster in the salt sand. One and one-half miles northeast of this test on the Rocky Step Run, same district, the same parties have completed in the same formation a test on the Jennie Jones farm. It is a gasser good for 1,500,000 feet. On the waters of Mud River, Grant district, Cabell County, Lewis Sweetland & Co. have completed and shot in the Berea grit a test on the Robert Collins farm. It is a light gasser.

On Porters Fork, Duval district, Lincoln County, the South Penn Oil Co. has completed and shot with 150 quarts No. 3, on the Columbus Griffith farm. This was an old well and the production increased from 8 to 16 bbls. a week. No. 5, on the Ephraim Griffith farm, and No. 4, on the Columbus Griffith farm, were given the same treatment and their production materially increased.

Fair Producers in Ritchie County

On Meadow Run of Goose Creek, Grant district, Ritchie County, the South Penn Oil Co. completed No. 6 on the Atkinson farm and showing for a natural producer good for 65 bbls. a day. On the same stream, the Meadow Run Oil Co. has a 60-bbl. producer at a second test on the Bowie heirs' farm.

On Isaac Fork of Bull Creek, Walker district, Wood County, the Four S. Oil Co.'s test on the Ora Bartimus farm is a very light pumper in the Maxon sand. In the same district, the Pleasant Hill Oil & Gas Co. is drilling No. 16 on the Snyder farm and the Park Oil & Gas Co. has started to drill a test on the Harry Brum farm.

Drilling Tests

On Fink Creek, Freemans Creek district, Lewis County, W. H. Frye & Co. have the rig completed for a test on the M. E. Church parsonage lot. In McComas district, Cabell County, J. S. Farr and others are rigging up at a test on the C. A. Wetherholp farm. In Duval district, Lincoln County, the United Fuel Gas Co. is rigging up on the Horse Creek Coal & Land Co.'s tract. The same company is building a rig on the Horse Creek Land & Mining Co's tract.

In DeKalb district, Gilmer County, McCall & Co. are rigging up on the Anthony H. Moore farm. In the same district, Snyder & Deems have started to drill on the J. A. Cain farm. In Clay district, Wetzel County, the Kimble Oil & Gas Co. has made a location for a test on the Kimble-Murphy farm.

In Murphy district, Ritchie County, the Hope Natural Gas Co. is building the rig for a test on the H. P. Camden farm. In Collins Settlement district, Lewis County, the Mud Lick Oil & Gas Co. is rigging up on the E. G. Davisson farm. In Barboursville district, Cabell County, Ortman & Shipe are drilling at 3,100 feet on the J. W. Waugh farm. At the present depth neither oil nor gas has been encountered. In Mannington district, Marion County, the Carnegie Natural Gas Co. has shut down for orders at 2,835 feet on the Mason heirs' farm. In Coal district, Harrison County, the Washington Gas Co. is due in the sand on the E. D. Titro farm. In Smithfield district, Ritchie County, the United Fuel Gas Co. has started to drill on the William Dougherty and Presley Vineyard farms. In Center district, Calhoun County, Godfrey L. Cabot is rigging up on the Jessie Ward farm. In Center district, Gilmer County, the Hope Natural Gas Co. has started to drill on the Martha Turner farm, and rigging up on the J. N. See farm. In Grant district, Pleasants County, the Emerson Oil Co. has started to drill No. 35 on the E. M. Cook farm.

Clay County

The Big Injun sand development in Henry district, Clay County, is completing more wells than any other district. The South Penn Oil Co. has completed Nos. 2 and 3 on the R. S. Kyle farm in Henry district, Clay County, each good for 20 bbls. a day. More wells are due to get the sand in a few days.

On the north fork of Hughes River, Grant district, Ritchie County, Loomis & Co. have completed their test on the Mullenax Brothers' farm. It is a light gasser in the Big Injun sand. In Glenville district, Gilmer County, the Pittsburgh & West Virginia Gas Co. has a gasser in the salt sand at a test on the R. E. Campbell farm.

In Lafayette district, Pleasants County, J. S. McMullin has a 4-bbl. pumper in the Keener sand at No. 3 on the Ankrom farm. In Carroll district, Lincoln County, the Grant Gas Co.'s second test on the Scott Lawson farm is a gasser in the Berea grit.

Southeast Ohio Tests

In a number of localities in the southeast Ohio fields, test work is under way and starting. Harrison Township, Perry County, is receiving more attention than for a number of months. In Section 21, Perry Sturm is drilling a test on the Friehl heirs' farm. Shanker Brothers are due in the sand on the W. C. Fletcher farm. Cline Brothers are drilling on the J. W. Guy farm. The Leonard Oil & Gas Co. is drilling on the Mary Butts farm, and has a rig completed on the George Allen farm.

In Section 26, Falls Township, Hocking County, the Calico Ridge Oil & Gas Co. is due in the Clinton sand on the Funk farm. In Section 13, the Rauber Oil & Gas Co. is fishing at a second test on the Emily Thrush farm. The Gordon Oil Co. is rigging up at a second test on the Charles J. Muldrim farm. In Section 24, Green Township, the Griffin Producing Co. is due in the Clinton sand on the Marlow Oil & Gas Co.'s lease. In Starr Township, the Martin Oil Co. is drilling on the J. W. Crawford farm.

In the central part of Lot 291, Sutton Township, Meigs County, Benedict & Bush have completed in the Berea grit a test on the A. Snowball farm. It is a gasser good for 1,000,000 feet. In Section 18, Adams Township, Guernsey County, the Ohio Oil Co.'s No. 3 on the James Mercer farm, is a gasser in the Niagara lime, estimated good for 1,500,000 feet. Total depth of the well is 3,335 feet.

In the northwest quarter of Section 20, Knox Township, Jefferson County, Tope, Edminston and others have completed a second test on the W. R. Edminston farm. It is good for 4 bbls. a day in the Berea grit. In the southwest quarter of Section 16, Aurelius Township, Washington County, W. T. Warren and others have completed a test on the Lillian Warren farm good for 3 bbls. a day in the Berea grit.

Deep Sand Territory

In the deep sand territory in southeastern Ohio, in Section 13, Killbuck Township, Holmes County, the Leonard Oil & Gas Co., while drilling at 33 feet in the Clinton sand at a test on the Byron Middaugh farm, encountered gas and drilling was suspended. The volume of gas was estimated at 2,000,000 feet a day.

In the old Corning district, Section 23, Monroe Township, Perry County, Keller Brothers and others have completed in the Berea grit No. 23 on the George Roberts farm. It is a light pumper. In the northern part of Section 17, Newport Township, Washington County, George B. Thomas has completed in the first Cow Run sand No. 4 on the A. Thomas, Sr. farm good for 5 bbls. a day.

In Reading Township, Perry County, the Pure Oil Co. has started to drill a test on the Howard Thomas farm. In Knox Township, Vinton County, the Co-

(Continued on Page 100)

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St. Louis, Mo.

CENTRAL WEST

(Continued from Page 62)

Rittenhouse drilled in No. 4 well 600 feet from the north line and 200 from the east line of the Frank Freed farm, Section 6, same township, for a flush of 20 bbls. with sand topped at 1,314 feet and total depth 1,389 feet. A test drilled by the Ridge Oil & Gas Syndicate 200 feet from the north line and 600 from the west line of the L. Wonders' 12 acres, in the southwest quarter of Section 35, Biglick Township, same county, tapped top of Trenton at 1,370 feet and drilled 69 feet in the sand, and good for 18 bbls.

In Marion Township, Allen County, Mack P. Colt and others' No. 3 well 750 feet from the south line and 200 from the east line of the John Lucius farm, in the southwest quarter of Section 10, pumped 35 bbls., with top of sand at 1,214 feet and sent to a total depth of 1,251 feet.

Wildcat Dry

Tester and others found a duster in their wildcat 1,000 feet from the south line and 250 from the west line of the J. Harrod farm, in the southwest quarter of Section 3, Union Township, Auglaize County. Sand was struck at 1,321 feet and drilled 64 feet in the sand. In Jackson Township, same county, the Crystal Oil Co.'s No. 4 well 550 feet from the south line and 800 from the west line of the Joseph Woehrmeyer farm, Section 23, pumped 10 bbls. at a total depth of 1,275 feet or 37 feet in the Trenton sand.

W. C. Richards and others, formerly reported as the Bee Oil Co., drilled in their third well 500 feet from the north line and 200 from the east line of the Amos Waggoner farm, Section 11, Washington Township, Sandusky County, southeast of Lindsay and northeast of Hessville. Top of sand at 1,284 feet and total depth of hole 1,331 feet, with a production of 5 bbls. under pump.

Sam K. Tate Jr.'s No. 4 well 1,300 feet from the south line and 200 from the west line of the Rose Fecher farm, Section 24, Recovery Township, Mercer County, pumped 10 bbls. Sand at 1,135 feet and drilled 48 feet in the sand.

In Cynthian Township, Shelby County, the Ohio Oil Co.'s second test 800 feet from the north line and 225 from the west line of the Theresa Coffena farm, Section 35, struck top of Trenton at 1,225 feet and drilled 121 feet in the sand to a total depth of 1,346 feet, with a production under pump of 25 bbls. This is the deepest well in the Trenton Rock formation for that county and shows that a lower pay is possible in other parts of the Shelby County Field. Lee A. Watson's third well 300 feet from the north lien and 1,500 from the east line of the Jennie Monnin farm, Section 34, pumped 5 bbls. with top of sand at 1,235 feet and total depth 1,298 feet. Willmer Property, trustee, drilled a pumper of the same size in No. 4 well 300 feet from the north line and 1,000 from the west line of the Joseph Siegel farm, Section 15, the oil being found in the Trenton sand at 63 feet in the sand at a total depth of 1,298 feet.

Indiana

Two excellent producers are reported from the Princeton District in southwestern Indiana. In Logan Township, Pike County, W. Darby and others' test on the Gurney Stewart farm, Section 23, is credited with a flush around 50 bbls. from the Gladish sand which was topped at 1,167 feet and the pay sand at 15 feet in to a total depth of 1,172 feet. This well should bring about additional development northeast of Oatsville's newest field. The Gladish sand in this well is about 130 feet above the Oakland sand where the big well on the Miley farm was recently reported. The Oakland City sand is found at a depth of 1,200 and over in the Oatsville Field, and at some points between 1,275 and 1,300 feet. Some of the largest producers found in Madison Township, same county, four miles west of Petersburg were drilled into the Gladish sand, and many of these wells are still being pumped. Perry Andrews, who purchased the property of the Good Luck Oil Co., of Petersburg, is drilling a first venture on the William Miley farm, adjoining the Miley Heirs farm. A number of other companies will start drilling just as soon as enough rainfall comes to fill the ponds and small lakes with water for their boilers. During the past few months few dry holes have been drilled in the Pike County area.

The Illinois Pipe Line Co. has completed its gathering line from Petersburg to the new development in Veale Township, Daviess County, 6 miles north of Petersburg, and the line will not be extended to the Martinsville tank farm; instead the oil will be drawn from the Daviess County Field through the eastern line in Pike County and from there to the line going west and thence through to Lawrenceville, Illinois.

The Murphy Oil Co. has drilled in a good well at its No. 5 on the W. E. Harrison farm, Section 19, Harrison Township, Knox County. Top of sand at 1,205 feet and total depth of 1,232 feet. In Gill Township, Sullivan County, Fred Bays drilled a light gas well at a test near the NW corner of the Sarah Vaughn farm, Section 26, at a depth of 575 feet.

The Murphy Co.'s well on the Harrison farm, found 27½ feet of sand. There was a strong gas pressure sufficient to clean out the well after shooting and then placed on the pump. This is the largest producer in the Monroe Pool. It is located south of Monroe City, a distance of about 2½ miles. Other activities are expected as a result of the latest strike.

The Murphy Oil Co. is drilling No. 5 on the Stewart Bros. farm, Section 13, Clay Township, Pike County.

The well of Estes, Manion and others on the W. Kammyer farm, Section 9, Maumee Township, Allen County, in the northwest extension of the Payne Field, is a light producer, but shows conclusively that oil exists there as well as a few miles south of the Helmke and Gerber farms, and it looks as though a nice small producing pool will be opened along a north and south area covering about three miles.

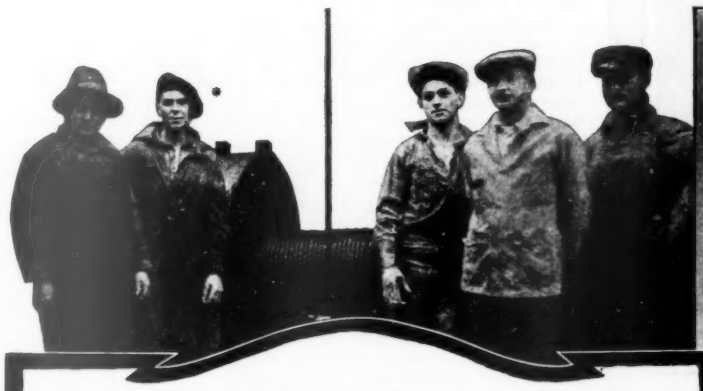
Illinois

The Illinois Field did not make a very good showing during the past several days owing to the fact that the most productive area around Allendale, in Wabash County, failed to show anything better than a 30 bbl. producer which was drilled by W. C. McBride, Inc., in a second test 1,350 feet from the south line and 50 from the west line of the Jermina Cisil farm, in the northeast quarter of Section 24, Wabash Township, and about three miles south of the Allendale Field proper. Sand was tapped at 1,548 feet and drilled 32 feet in to a total depth of 1,580 feet.

Another producer was added to the Allendale Field of Wabash Township, Wabash County, when J. S. Young Jr. and others (also known as the Allendale Oil Co.), drilled in a second venture on the J. G. Trimble farm, Section 35, located on the southern portion of the farm and an offset to the well on the Breen farm. It has a showing for a nice little producer and when shot and cleaned out, may prove a much better well than expected. Reports from the Snowden & McSweeney well on another of the J. G. Trimble farms, in the same section and north of Allendale, that the drillers ran into a showing of oil at a depth of 1,416 feet. The showing was not large, however, and the drill is being sent on deeper in the hope of finding pay sand at a greater depth. This well is a mile north of the Young well on the Trimble farm.

West of Allendale, in Friendsville Township, Wabash County, W. M. Bell and others' second test 800 feet from the north line and 600 from the west line of the H. C. Yelton farm, Section 5, proved a duster at a total depth of 1,573 feet. No. 1 on this farm, completed in April at a depth of 1,474 feet and located 1,000 feet from the south line and 200 from the west line, showed a production of 80 bbls. It is reported that a well will soon be started north of the Yelton near the town of Orio, possibly on the Tanguary farm.

In Centralia Township, Marion County, the Petro Oil & Gas Co.'s No. 9 in the



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This is another Union Oil job at Richfield, Calif. Y. L. G. No. 9 showing 8 strings of

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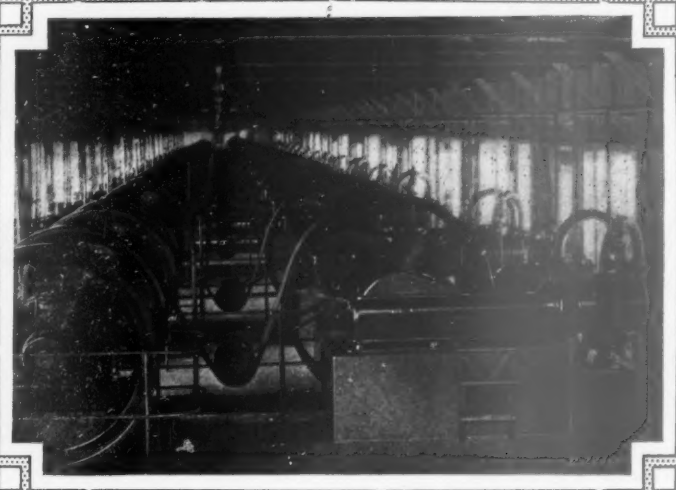

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southeast corner of the A. W. Webster lease, Section 30, is reported dry at 790 feet.

In Dennison Township, Lawrence County, the Ohio Oil Co.'s No. 13 on the J. W. Clark farm, Section 3, pumped 5 bbls. from the Bridgeport sand at from 939 to 960 feet. The Ohio Oil & Associated Producers Co. abandoned No. 30 on the Smith-Neely Oil Co. farm, Section 2. In Petty Township, same county, the Ohio Oil Co. abandoned No. 4 H. C. Johnson farm, Section 25, and No. 10 Albert Westfall 14 acres, Section 11, while the Bradford Oil Corp. pulled out old Nos. 1, 3, 5, 6 and 11 Sarah E. Jennings farm, Section 2, and abandoned the lease, returning it to the land owner.

A gas well with a rock pressure of 150 pounds was drilled by J. S. McNally and others on the Harry E. Otty land, on the north side of Rosewood Addition to the City of Robinson. The gas was struck at a depth of 1,054 feet and is considered an interesting find. No oil showing was encountered. This well is in Section 33, Robinson Township, Crawford County. In Honey Creek Township, the Selby-Cisler Producing Co.'s No. 48 in the northwest corner of the Claudia O. Reaville farm, Section 31, pumped 8 bbls. at 942 feet.

In Westfield Township, Clark County, Adkins and others' second well on the W. R. Shuey farm, Section 31, pumped 2 bbls. at 527 feet.

Central Ohio

In Kilbuck Township, Holmes County, the East Ohio Gas Co. hit a dry one at a test in the southeast corner of the Sanford Carpenter 67 acres, Lot 4, while the Leonard Oil and Gas Co. drilled into a nice gas pay on the Byron Middaugh farm, Lot 13, same township.

In the Chatham Township Field, of Medina County, H. A. Dempsey's No. 28 on the D. Ross farm, Lot 7, Tract 13, pumped 10 bbls. from 80 feet of sand.

The Ohio Oil Co. drilled in a 1,500,000 foot gas well at No. 3 on the James Mercer farm, Lot 18, Adams Township, Guernsey County.

Contractor H. E. Likins of Dillonvale, Ohio, is drilling a well for the June Oil and Gas Co. on the Andy Noble farm, near Harpersville, in Smithfield Township, Jefferson County.

ACCIDENT PREVENTION IN THE GAS INDUSTRY

(Continued from Page 68)

due to the production and distribution of gas there are some hazards due to its improper use. Accident prevention in the gas industry has entered this field of analyzing utilization conditions with the idea of making suggestions in order that accidents due to faulty installation of gas appliances or equipment be eliminated by proper education of the public. In this connection the accident prevention committee of the American Gas Association has co-operated with the National Safety Council, and the Public Health Service at Washington in calling public attention to dangerous practices.

The statistics which have been kept in recent years show that safety efforts are continually being rewarded by the diminution of accidents. The figures compiled not only show a smaller number of accidents each year, but it is very gratifying to realize that with continued safety stimulation the very minor accidents are now also being reported, whereas the first years of accident prevention work only for major accidents were reported. For this reason it is figured that today accidents have been cut down to less than one-half the proportion formerly known.

The future of accident prevention in the gas industry can be forecast from the records. It is felt that accident prevention work will continue to reap the benefits of past efforts and that a still greater decrease in accidents will be accomplished in the years to come. With better working conditions and improved facilities for doing work by mechanical means, accidents should naturally decrease.

University of Texas' Geological Bulletin On San Angelo Area

SAN ANGELO, Tex., July 9.—With the publication of the University of Texas Bulletin No. 2607, dated February 15, 1926, the name of San Angelo has been placed in the technical nomenclature of geological science. The bulletin is a booklet of 57 pages, which gives the history and data pertaining to what is now termed the San Angelo formation, which is a mapable unit which has been traced from San Angelo north to its crossing of the Red River in Wilbarger County, and from there to Duncan, Okla., where it becomes the Duncan sandstone of that State.

By reason of its distinctive characteristics, it forms a very important stratigraphic unit upon which to base broad correlations. Its importance as a horizon marker was first recognized by W. F Cummins of the Texas Geological Survey in 1890, who considered it to be a base of the Double Mountain formation, and he also defined and located the Clear Fork formation which it adjoins. Cummins and Dr. O. Lerch of San Angelo, together defined a part of the San Angelo formation in 1891. Nothing further was done along this line until 1919, when Betley and Doctor Bentley and Doctor Beede traced the San Angelo as far north as Blowout Hill in Taylor County. In its southermost exposures in Tom Green and Coke Counties, the San Angelo formation is composed of coarse, siliceous conglomerates of clay and sandstone. Westward and northward, in these counties, it grades into sandstones and shales.

The new bulletin, which is just off the press, was written in collaboration by Doctor Beede and D. D. Christner, both of whom live in San Angelo. Doctor Beede is the chief geologist in west Texas for the Dixie Oil Co., Inc., and Mr. Christner holds a similar position with the Marland Oil Co. Doctor Beede enjoys a national and international reputation as an authority on the geology of west Texas.

Conclusions discussed in the text of the bulletin and shown graphically in a map included with it, show for the first time the lines of demarcation between the Clear Fork formation on the east and the Double Mountain formation on the west of a line which has been traced from San Angelo north into Oklahoma. Another feature is that for the first time the Triassic is clearly and definitely defined, which was largely the work of Mr. Christner and which replaced the heretofore sketchy information of that subject.

The work has already attracted wide attention in geological circles, and is looked upon as having definitely settled many perplexing problems.

MORE COMPLETIONS, BUT SMALLER WELLS

(Continued from Page 79)

Probably the most reassuring thing in the entire situation is the steady decline in Line 1 of Graph 7 during the early months of 1926 in comparison with a steady increase in the early months of 1925.

In other words, during the early months of 1925, we were slowly increasing our total stocks of crude oil and its products. Today we are slowly reducing these total stocks.

This fact, taken in connection with the unfailing expansion in those industries using petroleum products, is the best assurance of the fundamental soundness of the present situation.

OIL MAN'S ESTATE TO STATE

CHEYENNE, Wyo., July 10.—Because he had made his fortune from leases on state lands in Wyoming oil fields, John W. Higgins, Glenrock, Wyo., oil man, left his entire estate, estimated at more than $500,000, to the State of Wyoming. Higgins, a widower, died at Glenrock June 24.

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HE PHONED—long distance. The St. Louis broker relayed his complaint by telegraph. The refinery checked his car by the sample they had kept in one of our 4 ounce sample oil bottles for color test. "O.K." they wired St. Louis. Investigation showed the buyer's expensive complaint was due to carelessness in making his color test with the help of an old tin can.

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ALTON ILLINOIS

JUNE RECEIPTS FROM CALIFORNIA AND IMPORTS OF PETROLEUM

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the month of June totaled 3,239,000 bbls., a daily average of 107,967 bbls., compared with 2,728,000 bbls., a daily average of 88,000 bbls. for the month of May.

Receipts at Atlantic and Gulf Coast ports for the week ended July 3 totaled 852,000 bbls., a daily average of 121,714 bbls., against 1,012,000 bbls., a daily average of 144,571 bbls. for the week ended June 26.

			Week Ended	
At Atlantic Coast Ports—	Total June	Total May	July 3	June 26
Baltimore	736,000	839,000	155,000	216,000
Boston	330,000	245,000	90,000	.....
New York	684,000	477,000	212,000	110,000
Philadelphia	1,034,000	417,000	244,000	380,000
Others	455,000	550,000	151,000	306,000
Total	3,239,000	2,528,000	852,000	1,012,000
Daily average	107,967	81,548	121,714	144,571
At Gulf Coast Ports—				
Port Arthur and Sabine district	.....	*200,000	.....	.....
Daily average	.....	6,452	.....	.....
Total Atlantic and Gulf Coast ports	3,239,000	2,728,000	852,000	1,012,000
Daily average	107,967	88,000	121,714	144,571
Distribution of Total California Oil Receipts Is as Follows:				
Crude	1,388,000	1,122,000	484,000	419,000
Gasoline	812,000	740,000	226,000	162,000
Gas oil	529,000	357,000	72,000	225,000
Fuel oil	452,000	509,000	70,000	216,000
Lubricating	58,000	.....	.....	.....
Total	3,239,000	2,728,000	852,000	1,012,000

According to figures collected by the American Petroleum Institute, imports of crude and refined oils at the principal ports for the month of June totaled 6,591,000 bbls., a daily average of 219,700 bbls., compared with 6,166,000 bbls., a daily average of 198,903 bbls. for the month of May.

Imports at the principal United States ports for the week ended July 3 totaled 1,280,000 bbls., a daily average of 182,857 bbls., compared with 1,210,000 bbls., a daily average of 172,857 bbls. for the week ended June 26.

			Week Ended	
At Atlantic Coast Ports—	Total June	Total May	July 3	June 26
Baltimore	474,000	384,000	.....	214,000
Boston	324,000	380,000	.....	65,000
New York	2,619,000	2,341,000	668,000	335,000
Philadelphia	195,000	361,000	50,000	48,000
Others	638,000	668,000	214,000	50,000
Total	4,250,000	4,134,000	932,000	712,000
Daily average	141,667	133,355	133,143	101,714
At Gulf Coast Ports—				
Galveston district	759,000	394,000	103,000	159,000
New Orleans and Baton Rouge	1,268,000	1,402,000	245,000	271,000
Port Arthur and Sabine district	197,000	60,000	.....	68,000
Tampa	117,000	176,000	.....	.....
Total	2,341,000	2,032,000	348,000	498,000
Daily average	78,033	65,548	49,714	71,143
At All United States Ports—				
Total	6,591,000	6,166,000	1,280,000	1,210,000
Daily average	219,700	198,903	182,857	172,857

REPORT OF OIL BOARD DELAYED TWO MONTHS

By Charles E. Kern
Washington Bureau,
The Oil and Gas Journal

WASHINGTON, D. C., July 10.—There will be a long delay in the preparation of the Federal Oil Conservation Board's preliminary report on domestic conditions in the oil industry, which is to be submitted to President Coolidge. It was expected that this report would be ready by the end of June and the delay, attributed partly to the reopening of hearings recently to permit representatives of the oil industry and the American Petroleum Institute, through its counsel, Charles Evans Hughes, to make a further presentation of their views.

A careful study of the digest prepared by a technical and advisory committee of the board, based upon the great mass of information collected on conditions in the domestic oil industry, is being studied by the board. Possibly as much as two months will elapse before the board has completed its report.

MEXICAN KEROSENE DUTY

WASHINGTON, D. C., July 10.—The Mexican import duty on mineral oil, kerosene or petroleum for illumination purposes, and mineral wax and paraffin, has been changed, effective July 7. These products were formerly dutiable under item 258 at 10 centavos per legal kilo, with the usual Mexican surtax of 12 per cent of the amount of the duty. Mineral oil, kerosene or petroleum for illumination have been retained in this item and granted entry free of duty, while mineral wax and paraffin have been placed in item 261 and carry the same rate of duty as formerly.

SAY MEXICANS DRAIN POOLS

Serious difficulties are reported between American oil companies and the Mexican Department of Industry, the latter having granted permission to drill wells in such position as to tap the pools of the American companies. The Mexican Gulf Oil Co. has appealed against a permit given by the Department of Industry to the National Oil Control Commission, representing a railway oil company, to drill wells adjacent to the exploited oil lands of the American company. It is said that other American oil companies are in the same condition and that the Mexican Gulf is making a test case.

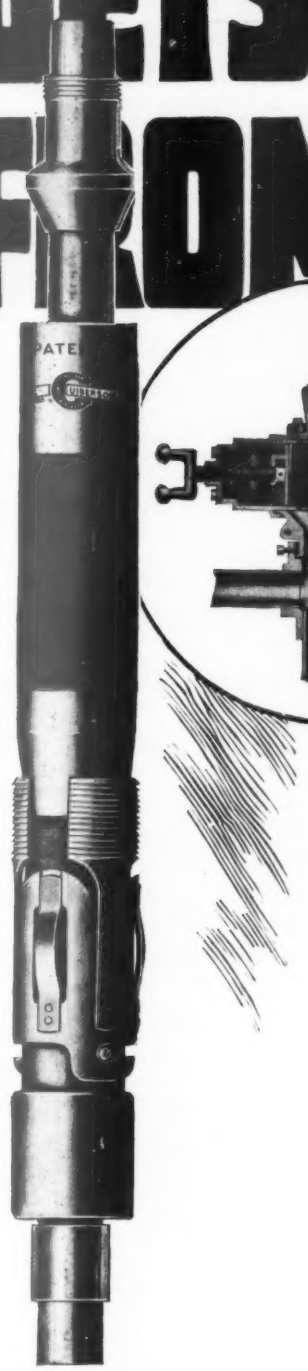
P. & R. CORP. ELECTS OFFICERS FOR 1926

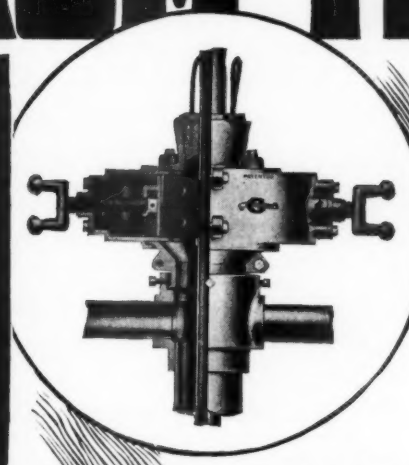
Frank E. Kisler resigned as chairman of the Producers & Refiners Corp. of Denver, Colo., at the annual meeting of the corporation. He will be associated with the management of the Petroleum Securities Co. of Denver, of which W. E. Lockhart, until recently executive vice president of Producers & Refiners, is president. New officers of the Producers & Refiners Corp. are: John Fertig, president and general manager; R. E. Wertz, vice president in charge of production; L. R. Crawford, vice president in charge of refineries and sales; O. O. Holmgren, re-elected treasurer, and A. W. Hinnemann re-elected secretary.

GETS CHAPACAO INTEREST

Agreement is reported to have been reached between Pan American Petroleum & Transport Co. and the State of Vera Cruz whereby the company's complete vested interest in certain parts of the Chapacao Oil Field is recognized by the State. The property represented a minority interest in certain lands arising from the death of several landholders intestate without heirs. The State made a claim to such holdings and started suit against the company. The arrangement now reached recognizes the company's right to the property.

GETS MORE OIL FROM THE SAND





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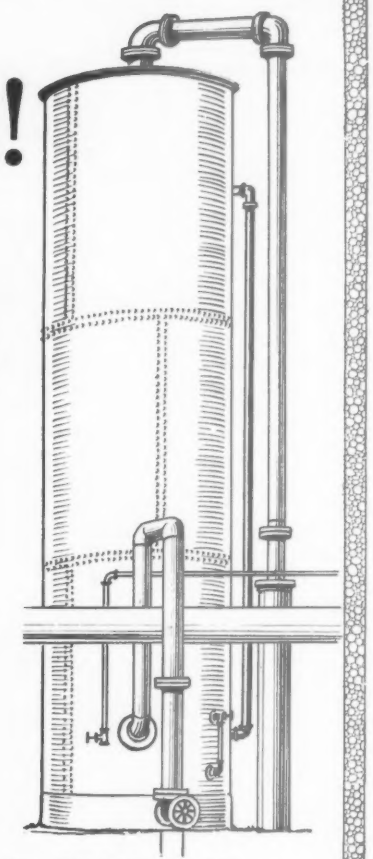

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PUMPS

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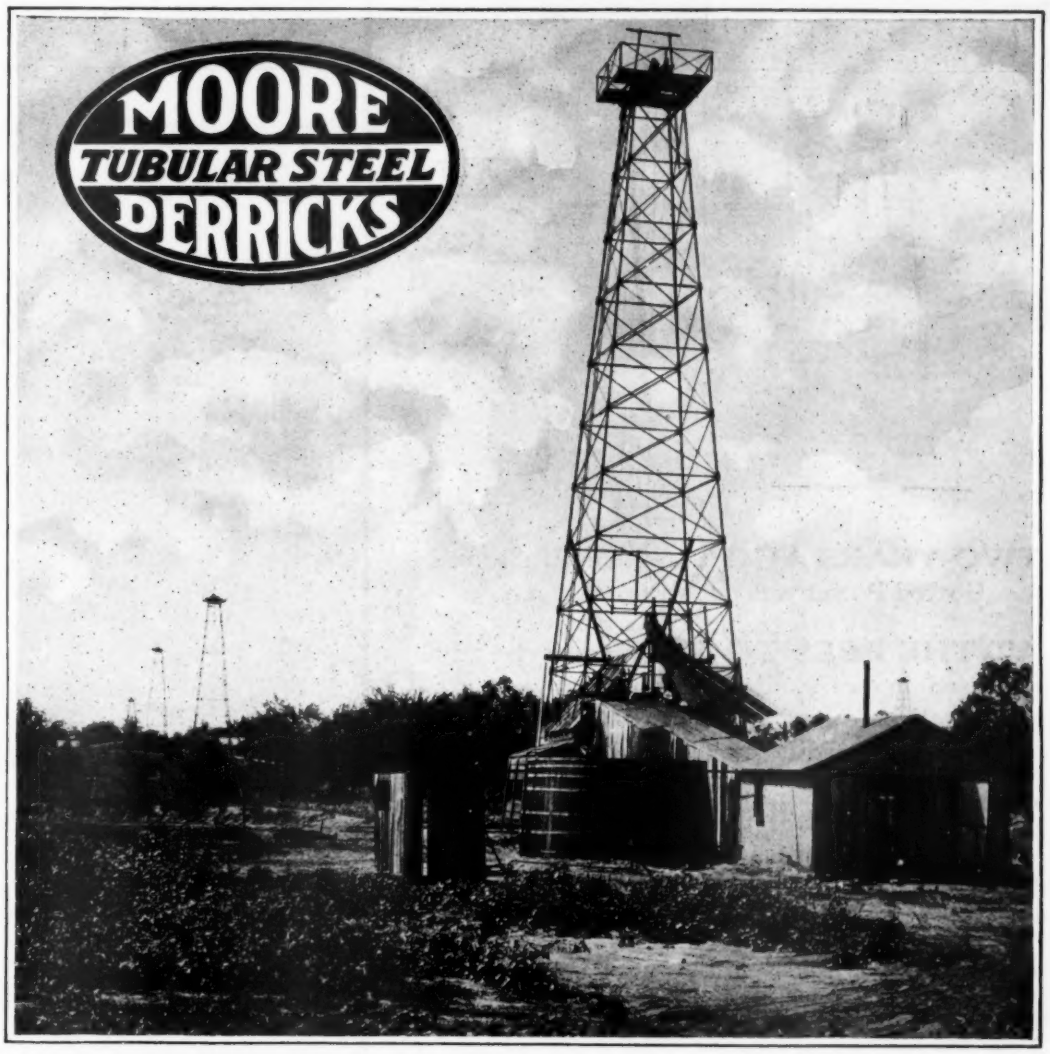

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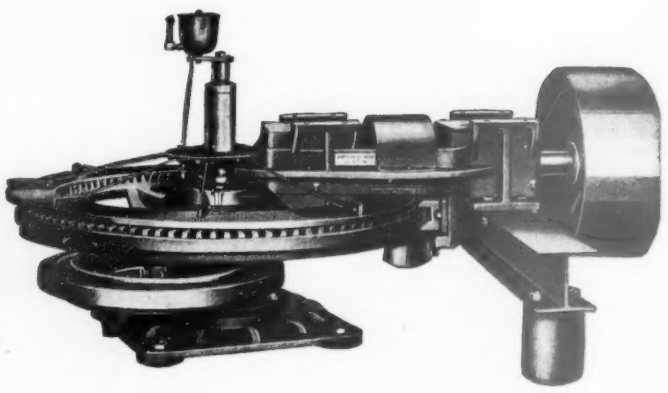

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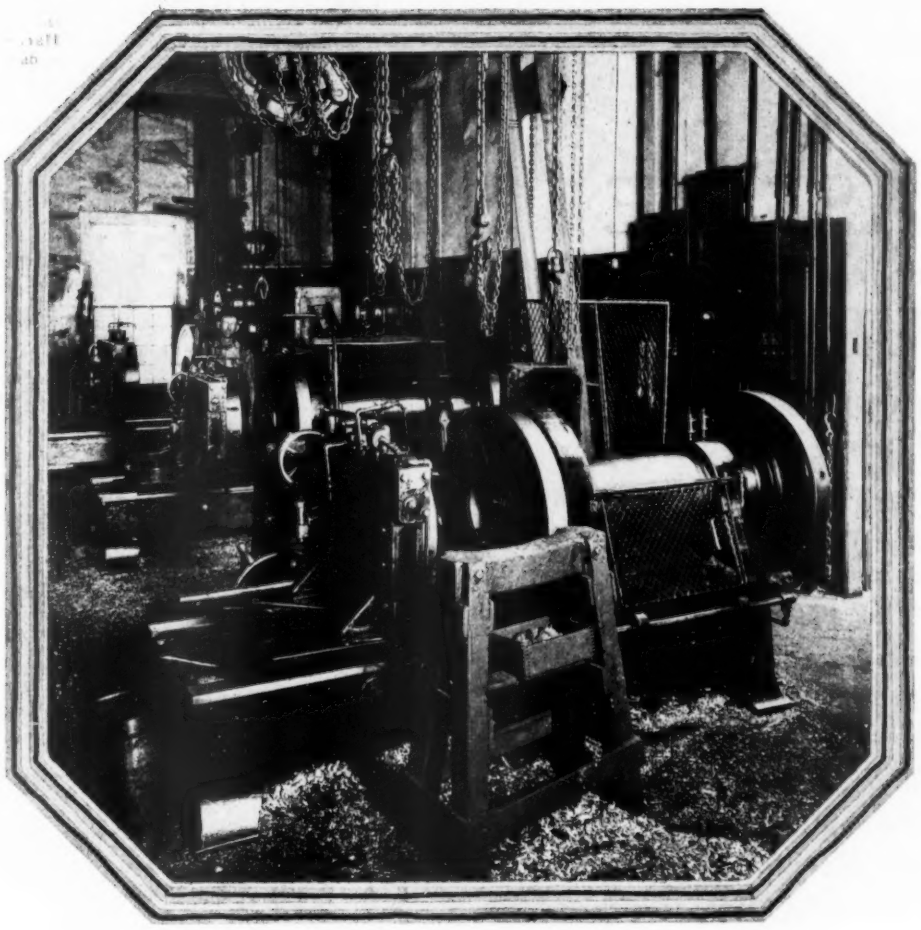

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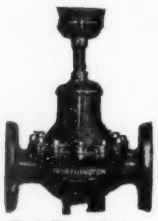

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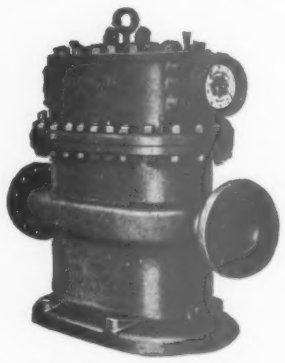

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EASTERN FIELDS

(Continued from Page 83)

operative Oil Co. is drilling a second test on the William Beckley farm.

In Section 6, Hopewell Township, Licking County, the Pure Oil Co. has completed and shot in the Clinton sand a test on the Brown heirs' farm, which produced 50 bbls. the first 24 hours. In Section 2, Franklin Township, Moore & Adams have a 3-bbl. pumper in the Berea grit at their No. 3 on the Parker Wolfe farm. In the northwest quarter of Section 10, Bowling Green Township, the Midland Oil Co. has completed in the same formation No. 3 on the A. D. Cooperrider farm. It is a duster.

In Section 20, Jefferson Township, Knox County, the Upham Gas Co.'s test on the Frank Logsdon farm is a gasser in the Clinton sand good for 1,000,000 feet a day. In the northwest quarter of Section 28, Coal Township, Perry County, the Chartiers Oil Co. has completed in the Clinton sand No. 198 on the Hocking Valley Products Co.'s property showing for a light producer. When shot the casing collapsed and they are now fishing.

In Lot 1,217, Sutton Township, Meigs County, the Pure Oil Co.'s No. 4 on the Yost heirs' farm is good for 10 bbls. a day in the Berea grit. In Section 10, Killbuck Township, Holmes County, the East Ohio Gas Co.'s No. 4 on the George Moritz farm will make a very light pumper in the Berea grit.

In the southeast quarter of Section 26, York Township, Morgan County, the Pure Oil Co. completed and shot in the Berea grit No. 11 on the William Epply farm. It produced 20 bbls. the first 24 hours. In Lot 285, Sutton Township, Meigs County, W. N. Hovis has completed his No. 3 on the Jasper J. Jividen farm good for 8 bbls. a day.

Light Wells in Hocking County

In the southeast quarter of Section 24, Ward Township, Hocking County, the Sunday Creek Coal Co. has completed and shot in the Clinton sand No. 136 on its property, not good for more than 7 bbls. a day. South of the center of Section 23, Green Township, same county, the Jewell Oil & Gas Co. has drilled into the Clinton sand a test on the P. R. Blair farm, showing for a 5 or 10-bbl. pumper.

Duster in Licking County

In Section 12, Madison Township, Licking County, W. W. and A. T. Wehrle have completed in the Berea grit a test on the O. E. Wise farm. It developed a very small showing of oil but has been plugged and abandoned. In the old Corning Field, Section 23, Monroe Township, Perry County, Keller Brothers and others have a 2-bbl. pumper at No. 23 on the George Roberts farm. In the northwest quarter of Section 21, Knox Township, Harrison County, S. H. Boyce & Co. have completed and shot in the Berea grit No. 8 on the W. L. Groves & Co. farm. It produced 20 bbls. the ensuing 24 hours. There is room for several more locations on this farm.

Light Pumper in Noble County

In the southeast quarter of Section 7, Noble Township, Noble County, George E. Jewell and others have completed in the Berea grit No. 5 on the Moses L. Ginn farm. It is a very light pumper. Four miles west of Cadiz, Archer Township, Harrison County, Samuel Crain and others have completed in the Berea grit a test on the J. J. and A. O. Finnical farm. It is good for 10 bbls. a day and is the first well completed in that locality for more than a year.

Small Wells in Columbiana

In the southwest quarter of Section 10, Madison Township, Columbiana County, R. C. Miller & Co. have completed and shot in the Squaw sand No. 6 on the M. J. and G. F. Eells farm not good for more than 1 bbl. a day. No. 7, on the same farm, has been completed and is the same kind of a pumper.

Southwest Pennsylvania

One mile south of Swart, Morris Township, Greene County, Charles T. Sutton and others have drilled a test on the Phillips farm in to the 50-foot sand. It is a gasser with an estimated capacity of 5,000,000 feet a day.

In Aleppo Township, Greene County, the Dunmar Oil & Gas Co.'s test on the Harriet M. Grim farm is good for 8 bbls. a day in the fifth sand. In Richhill Township, the Cameron Heat & Light Co.'s test on the Barney Lewis farm is a gasser in the Gordon sand.

KENTUCKY-TENNESSEE

(Continued from Page 58)

drilled in No. 5 on the Sanders farm, for a 5 bbl. pumper. J. W. Porter's No. 18 McGlochlin farm, is rated at 3 bbls, with No. 19 drilling. Hiland Oil & Gas Co.'s No. 1 W. D. Beals, proved a dry hole.

In the Knob Road District, Ziegler Bros., have been delayed by the completion of No. 6 on the C. D. Boyd farm, as they were compelled to move their drilling outfit three times on account of boulders and bad holes.

In the Lecta Pool, the Esslinger Oil Co. was compelled to make four moves at its No. 8 on the C. B. Jones farm. This company's well on the Walker farm, same pool, caught fire and the rig was badly damaged which will hold operations for a few days.

Allen County

The Scotteville Field of Allen County is credited with six completions, two being dry and four very light pumpers. The M. S. H. Oil Co.'s second test on the Earl Oliver farm, was dry at 370 feet. Mealey & Mealey's No. 19, M. J. Lewis farm, was dry at 356 feet.

F. J. Tapp's No. 11 on the Ike Hill farm, is rated a 3 bbl. pumper at 474 feet. Sam W. Bradshaw's No. 14 on the Phoebe Oliver farm, is rated at around 3 bbls. at 292 feet.

W. G. Moorman, trustee, drilled in a very light pumper in No. 12 J. W. Frost farm, at 364 feet, while the Helka Development Co. has one of the same kind at No. 9 on the Effie Sanders farm at 400 feet.

Other Developments

In Cumberland County, Sulphur Creek District, W. S. Raydure & Son, keeps going downward at No. 5 well on the M. E. Coop farm. This well found at least three pay sands that made excellent showings and then petered out and now that it is down to the lower sand at 950 feet shows only for a small pumper, from the 840 foot level as the deeper sand was dry. In the Pulsey Creek area, same county, McClintock, Reid and Heckathorn's No. 4 on the J. M. Hughes shows for a very light pumper. This well was carried to the 900-foot level, shot with 20 quarts at 815 to 825 feet, and from 874 to 880 with 20 more quarts. The Southern Producers Co. has a fishing job at 725 feet at No. 10 on the A. A. Huddleston farm in the Sulphur Creek Field.

Eastern Division

A scarcity of water prevails in most of the fields of the Eastern Division of Kentucky and not so many completions are being made. Eleven completions are reported from the east end, with 81 bbls. flush production and no gas wells or failures.

In Johnson-Magoffin Counties, District 30 of the South Weir Field, the Wilson Oil Co.'s No. 4 Kelley Owens farm, estimated at 5 bbls.

In the North Weir Field of Lawrence-Johnson Counties, in District 22, the Swiss Oil Corp.'s No. 11 Caney Sparks, is a 5 bbl. pumper. In District 22-a, the same company's No. 20 C. K. Dobyne No. 1 farm, 5 bbls.; No. 31 Sanford Lyon farm, 10 bbls. In District 32, same company's No. 43 P. P. Holbrook farm, showing 10 bbls. and No. 18 George Evans farm, District 33 pumped 5 bbls. and No. 19 same farm, 4 bbls.

In District 18-B of Lee-Owsley Counties, the Coombs Bros. Development Co.'s No. 3 Jack Evans farm, pumped 5 bbls.

In the Irvine Field of Estill County, the Superior Oil Corp.'s Nos. 9 and 10 Simp Horn farm, are rated at 8 bbls. each, while the Wood Oil Co.'s No. 9 William Neal farm, produced 12 bbls.

The Petroleum Exploration Co. is starting a test on the Craney Creek Dome, in Morgan County. Same company is starting No. 4 on the Spencer heirs farm, in Wolfe County.

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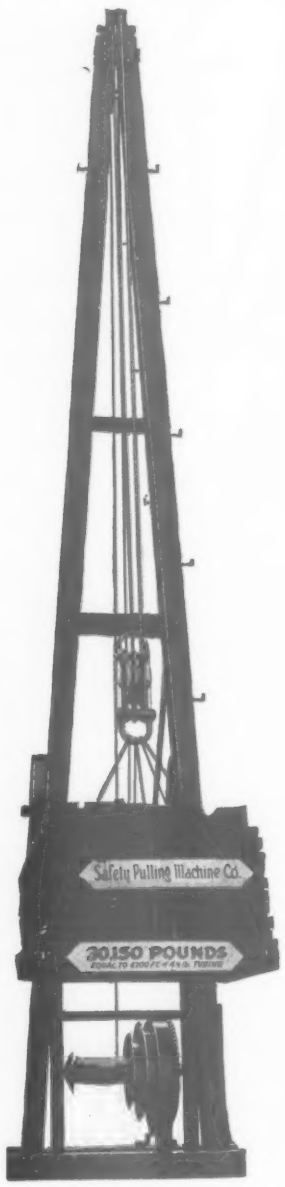
Eclipse Deepwell Pulling Machines

are in use, as far East as Pennsylvania, in Ohio, Indiana, Illinois, as far West as California, Montana and New Mexico, all over Oklahoma and Texas and in Arkansas and Louisiana. Wherever there is tubing to be pulled.



Specifications Deepwell

Eclipse Deepwell up to 8000 ft. 2" Tubing, Weight.....3645

Mast 8x10x36 ft., Douglass Fir A-Style Two Wheel Truck, two 16" Bronze bearing crown pulleys, 2½ Steel Pin mounted in malleable boxings. Large supporting plate 16" dia. between crown pulleys, eliminating any chance of bending pin.

Reel or Drum; 32 lb. 8¼ casing filled with concrete for winding drum, differentials banded with 3/16 band iron, brake surface 6"x40", choke brake style same as Star drilling machine.

The whole reel assembly is mounted on 2¾ square steel shaft extending clear through reel, secured by three heavy castings.

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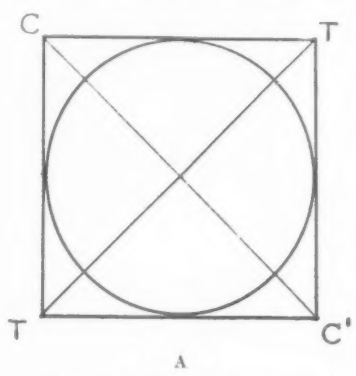
SAFETY PULLING MACHINE COMPANY

INDEPENDENCE, KANSAS

POSSIBILITIES OF CREEK COUNTY AS VIEWED BY GEOLOGISTS

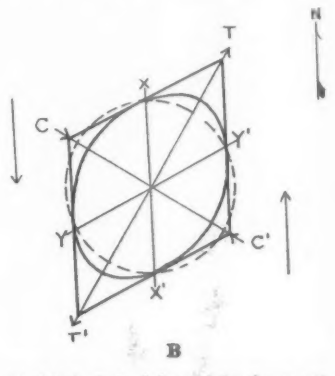
(Continued from Page 50, July 8)

Direct tangential compression. The earlier study of geologists of anticlines and synclines was carried on in regions where tangential compression on a large scale had taken place. Indeed the earlier production of oil came from such regions. Geologists familiar with that form of structure (Appalachian type, for instance) working later in regions of flat dip, such as the Mid-Continent area, naturally turned first to the tangential theory to explain the origin of our Mid-Continent structures. The forces of compression under this theory may be transmitted either horizontally through the sediments, or through the basement complex and by it into the overlying sediments in the form of more or less vertical movements.



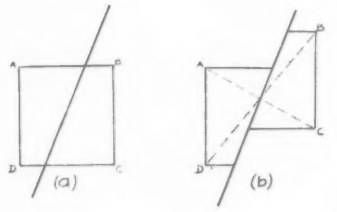
A

To illustrate the strain ellipse as developed by Leith. It is assumed that the square C T C' T' is a section of incompetent rocks with the circle (representing the undeformed position of the strain ellipse) and diagonal lines drawn on it for illustrative purposes.



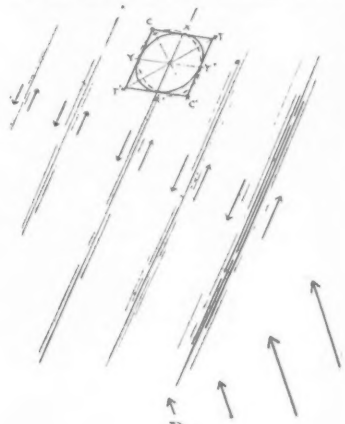
B

If sketch A is deformed by forces acting as indicated by the arrows the circle becomes an ellipse, which means compression from C to C' and tension between T and T'. X-X' and Y-Y' are planes of no distortion or planes of maximum shear. If C T C' T' be a section of incompetent sediments overlying shearing planes in the crystalline rocks, it is clear that NE-SW compression folds would tend to develop between C-C' and tension faults striking NW-SE would develop between T-T'.



C

Sketches (a) and (b) picture the effect of shearing in the crystalline rocks. (a) may be considered as an undeformed section of the crystallines and (b) the same section faulted. Notice that the distance between A-C in (b) is shortened (implying compression) and that of B-D lengthened (implying) tension. There is more lengthening than shortening. In northeastern Oklahoma there are more tension faults than compression folds.



D

This is a hypothetical sketch to show the probable lines of weakness and shearing in the basement crystalline rocks. The large arrows to the SE indicate the direction and intensity of the parent thrust coming from the Ouachita-Arbuckle orographic element. The small arrows along the shear lines show the relative movement of the shearing and its intensity.

Fig. 4.—To illustrate the principles of the strain ellipse and its application to the interpretation of the structural features in hand, and to show the effect of shearing in the basement rocks, the origin of the parent forces, and the probable lines of weakness in the basement pre-Cambrian crystalline rocks.

It is not possible, however, to accept the tangential compression theory here as applied through the sediments because of the incompetency of a sedimentary body of less than a mile in thickness to transmit such forces through a hundred or more miles of distance horizontally. If the Paleozoic sediments were subjected to severe thrusting from the Ozarks, as is assumed by some, there would be severe shearing and folding at the point of thrust which would die out rapidly and disappear long before the central region of Oklahoma and Kansas was reached. Besides, the Ozark uplift is not sufficiently great to cause any appreciable shortening in the sedimentary section. In fact, the very small shortening possibly caused by the synclinal form taken by the sediments between the Ozarks and the Rocky Mountains would most likely be taken up in rearrangement of sedimentary particles so that no crumpling of sediments would be necessary. It is to be noted that there are no steep and rapidly dying folds developed from the Ozarks westward.

Basement Complex

On the other hand, the basement complex (crystalline rocks underlying the Paleozoic sediments) is amply competent to transmit horizontal thrusts and Powers[16] explains the successive uplift of buried hills in this region by this means.

It does not seem possible, however, to explain the uplift of small more or less isolated points such as the buried hills (e.g. the Nemaha Mountains) in this way, especially at such great distances from the points of thrust, even granting

(Continued on Page 149)

[16]Powers, Sidney, Structural Geology of the Mid-Continent Region, Bull. Geol. Soc. Am., Vol. 36, pp. 379-392, 1925. Reflected Buried Hills and Their Importance in Petroleum Geology, Economic Geology, Vol. 17, pp. 233-259, 1922.

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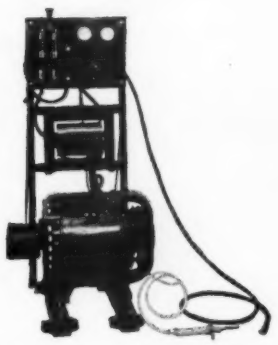

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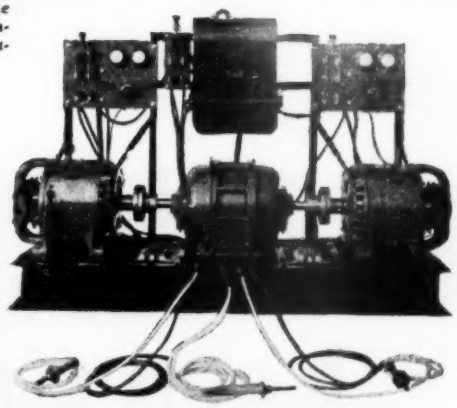

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ARTESIA, NEW MEXICO

(Continued from Page 48)

Welch & Yates' No. 4 Keyes, in Section 21-18-28, drilling below 2,400 feet; No. 48, Section 21-18-28, cleaning out after shot, making 75 bbls.; Hasenfuss & Donley's No. 2, in Section 13-18-27, drilling below 2,010 feet; Rehn & Harris' No. 1 Winans, in Section 15-18-26, shut down; Henderson-Dexter & Blair's No. 1, Section 9-19-28, moving tools; Ohio Oil Co.'s No. 2 New States, Section 8-18-28, drilling below 1,500 feet; Ohio Oil Co.'s No. 1, in Section 12-17-31, drilling 500 feet; Picher Oil Corp.'s No. 3 Cronin permit in Section 12-18-27, on production; Phillips & Welch's No. 1 in Section 35-17-28, fishing; Swartz-Compton & Eaton's No. 1 Brainard permit, Section 5-18-27, drilling 1,780 feet; Sun Oil Co.'s No. 1 Section 21-25-30, spudded in; Skelly Oil Co.'s No. 1 Lynch permit, drilling at 550 feet; Shugart and others' No. 1 in Section 1-17-31, location; Bruce Sullivan's No. 1, Section 8-18-31, drilling 250 feet; Bruce Sullivan's No. 1, Section 1-18-31, drilling 200 feet; Twin Lakes Oil Co.'s No. 8 in Section 28-18-28, fishing; Wade & Bujac's No. 1 Goodale permit, Section 19-18-29, cleaning out hole; Wooley-Jones' No. 1 Beeson, Section 33-17-30, drilling in red sand at 2,502 feet.

Chaves County

Colorado Gas & Fuel Co.'s No. 1, Section 16-9-27, no report; Etz & DeVito's No. 1, Section 24-11-25, drilling below 500 feet; Gibson Oil Corp.'s No. 1 Forsyth, Section 8-11-23, drilling 1,000 feet; Rogers and others' No. 1 Purcell Sloop, Section 14-11-26, cleaning out after shot; Sparrow & Drake's No. 1 Fahrlander, Section 11-6-27, drilling below 550 feet; The Texas Company's No. 1 Dunken Dome, drilling below 700 feet.

Lea County

J. S. Covert's No. 1 in Section 15-21-33, underreaming 12½-inch at 850 feet; Englefield and others' No. 1, in Section 4-17-34, drilling 600 feet; Maljamar Oil & Gas Corp.'s No. 1 Baish, Section 21-17-32, installing steam engine and boiler. Maljamar has validated 11 permits all drilled to 500 feet and cased. Ohio Oil Co.'s No. 1 Pearl Miller permit, in Section 35-17-32, moving in tools; Ohio's No. 1 William Mitchell permit, in Section 18-17-32, moving in tools; T. P. McDonald's No. 1, Section 22-18-34, moving in tools.

N. LOUISIANA-ARKANSAS

(Continued from Page 48)

cation has been made for The Texas Company's No. 2 Herold, 500 feet east, 135 feet north SW cor. Section 14-21-15. No. 4 Hicks & Payne, Section 21-21-15, is drilling at 340 feet. A derrick pattern is on location for Thompson and associates' No. 1 Muslow, 200 feet south and 1,220 feet east center Section 31-21-15. Six-inch is being set at 2,420 feet at Woodley Petroleum Co.'s No. 3 Knight, Section 35-16-12.

Caldwell Parish

Humble Oil & Refining Co.'s No. 1-A Louisiana Central, Section 9-11-3e, is drilling at 1,625 feet. T. R. Robbins' No. 1 Beasley, Section 10-11-4e, is a rig and Southern Crude Oil Purchasing Co.'s No. 1 Caldwell, Section 35-14-5e, is being rigged up. Wright and associates' No. 1 Love, Section 16-11-2e, is shut down at 1,625 feet.

Claiborne Parish

Gilliland Oil Co. and W. R. Ramsey's No. 1-D Taylor, Section 14-23-8, is coring anhydrite at 4,090 feet. Standard Oil Co.'s No. 35 Lowenberg, Section 24-21-8, is drilling in sand at 1,296 feet. Triangle Drilling Co. lost the drill stem and core barrel at 4,300 feet at No. 1 Keen, Section 7-19-5. Triangle moved the rig off No. 1 Hollayfield to No. 1 Meadows, Section 7-22-5, and is reaming the old hole to the bottom at 2,172 feet, preparatory to deepening.

DeSoto Parish

The casing seat at 3,801 feet did not hold at Dixie Oil Co.'s No. 1 Jenkins, Section 9-12-11, and 6-inch is being underreamed to 3,815 feet. Magnolia Petroleum Co.'s No. 1 Bond, Section 27-12-11, is drilling at 3,283 feet. A rig is up for Peer Oil Co.'s No. 1 Woolums, NW cor. Section 23-13-13, in the old Naborton district for a 3,000-foot test.

Grant Parish

Another flexure test hit the ocean when Humble Oil & Refining Co.'s No. 5-A L. & A., Section 16-9-1w, was abandoned in salt water sand at 1,654 feet. Bradley & Cozart's No. 1 Holmes, Section 16-9-1, is the latest to create excitement in the Georgetown area by coring 2½ feet of sandy shale topped at 1,457½ feet and then finding 6 feet of sand. Six-inch casing was cemented at 1,546 feet at the test. Location has been made for Fuller and associates' No. 1 Barnes, 2,310 feet north and 330 feet east SW cor. Section 26-8-5w, and No. 1 Harrison, Section 9-8-5w, is rigging. Gulf's No. 1 L. C. Swope, Section 17-9-1e, is drilling at 800 feet. Humble's No. 8-A L. & A., Section 15-9-2w, is drilling at 1,050 feet and No. 11-A, Section 20-9-2w, is being rigged up. Tunica Petroleum Co.'s No. 1 L. & A., Section 20-19-1e, tested salt water with a small show of oil at 1,665½-69 feet. Tunica's No. 2 L. & A., Section 32-9-1e, is rigging.

Jackson Parish

Charles A. Ferguson's No. 1 Martin, Section 5-15-1e, is shut down at 800 feet. Location has been made for Grigsby & Co.'s No. 1 Adams, SW cor. Section 22-17-4w. Clarence Houseman's No. 1 Horton, Section 34-15-3w, is rigging up and Louisiana Petroleum Co.'s No. 1 Davis, Section 20-16-3w, is a rig.

Monroe District

Old Man Jinx camped in the Monroe Field during the week and spelled misfortune for two tests. The hole was lost at 1,000 feet at Feazel's No. 1 Archer, Section 22-20-4e, and the rig is being skidded for the second hole. Central company's No. 1 Keer, Section 12-19-4, lost the hole at 775 feet and is skidding the rig. R. C. Boisseau and associates' No. 1 Sullivan, Section 11-21-7e, bailed dry at 2,542 feet and is being deepened. Natural Gas Products Co.'s No. 19 Crossett, Section 24-20-4e, is drilling at 925 feet. Eight-inch casing was cemented at 835 feet at United Carbon Co.'s No. 1 Burton, Section 24-20-4e. Hodge & Hunt's No. 1 Miller-Roberts, Section 11-18-4e, is drilling at 2,018 feet. Six-inch was cemented at 2,206 feet, corrected depth, at G. E. Jordan's No. 1 Fudicaker, Section 13-18-4e. A derrick is being built for Maury Drilling Co.'s No. 34 fee, Section 6-19-5e. Maury Drilling Co.'s No. 3 McErwin, Section 20-19-4e, is drilling at 1,520 feet.

R. J. O'Brien's No. 1 Ray & Green, Section 2-18-4e, is drilling at 2,131 feet. Palmer Corp.'s No. 2 Millsap, Section 25-20-4e, is drilling at 2,096 feet. Southern Carbon Co.'s No. 49 fee, Section 35-19-4e, is drilling at 1,096 feet. Arkansas Fuel Oil Co.'s No. 1 Reeves, Section 14-20-1e, is drilling in sandy shale at 3,807 feet. A derrick is up for R. W. Rhodes' No. 1 Pickens, SW cor. NE NW, Section 22-22-2w. Ruston Drilling Co.'s No. 1 Parks, Section 30-20-4e, tested 500,000 feet of gas at 2,175 feet and is being deepened. Southern Carbon Co.'s No. 4 Grayling, Section 28-21-4e, is drilling at 1,850 feet; No. 5 Grayling, Section 21-21-4e, is drilling at 1,650 feet and 6-inch was cemented at 2,048 feet at No. 2-B Grayling, Section 32-21-4e.

Sabine Parish

L. M. Emlet's No. 6 H. L. Bowman, Section 9-7-12, is shut down in shale at 4,054 feet while repairs are being made to the derrick. J. B. Greer's No. 2 Peavy-Wilson, Section 11-5-9w, is drilling in gumbo at 1,960 feet. Toro Petroleum Co.'s No. 3 Drake, Section 19-4-11, is drilling at 800 feet.

Webster Parish

Magnolia Petroleum Co. completed another well in Cotton Valley when No. 2-B Turner, Section 21-21-10, was finished in sand at 2,574-84 feet for a 65-bbl. pumper. Humble Oil & Refining Co.'s No. 2 R. R. Cox, Section 22-21-10, is drilling at 2,385 feet. Magnolia's No. 1 J. S. Sexton, Section 32-23-9, is drilling at 400 feet, and No. 2 Tiner, Section 21-21-10, is drilling in gumbo at 1,140 feet. R. W. Norton's No. 1 Josey & Massey, Section 27-21-10, is being rigged up to deepen. Ohio Oil Co.'s No. 1 Cox, Section 23-21-

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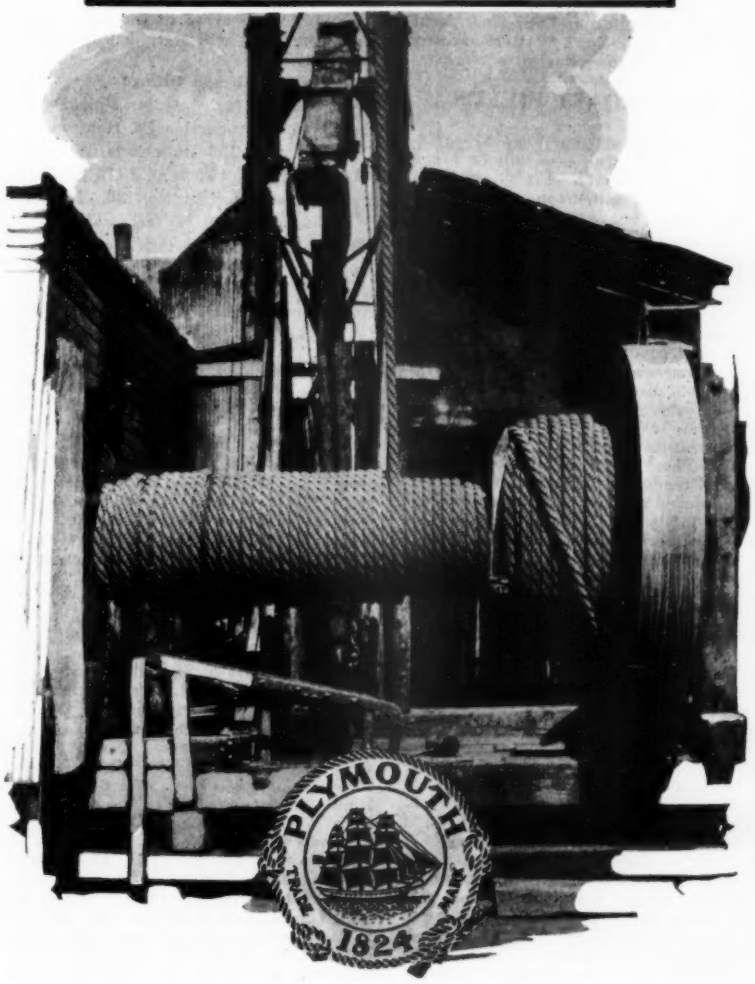

10, is drilling in hard lime at 5,629 feet. Ohio's No. 3 Holloway, Section 23-21-10, is drilling in anhydrite at 4,156 feet. Six-inch casing was cemented at 2,527 feet at Ohio's No. 7 Sidney Heirs, Section 16-21-10. Location has been made for Palmer Corp.'s No. 1 Crichton, SW cor. Section 30-20-8. Smitherman & McDonald's No. 1 Oakley, Section 29-23-11, is drilling in lime at 4,510 feet. Southern Crude Oil Purchasing Co. and Ramsey's No. 1 Munn, Section 1-22-10, is drilling in lime at 4,195 feet.

Winn Parish

O. W. Clark's No. 4 Harper, Section 26-10-1e, Urania Field, has spudded and locations have been staked for No. 5 and No. 6 Harper in the same section. Humble's No. 7-A L. & A., Section 12-9-3w, is coring at 1,540 feet. Humble's No. 1-A Tremont, Section 26-11-1w, is drilling at 1,102 feet. W. T. Hunt and associates' No. 1 Edenborn, Section 8-2-3w, is drilling at 2,090 feet. Keene & Woolf's No. 1 Radescich, Section 21-12-3w, is drilling at 2,060 feet. Same operators' No. 1 Tisdale, Section 26-10-1e, Urania Field, cored the top of oil sand at 1,496 feet and casing is being cemented at 1,490 feet. Ohio's No. 1 Edenborn, Section 4-12-1w, is drilling at 400 feet. O'Neil & Schuman's No. 1 Allbritton, SE cor. Section 27-10-1e, is drilling at 90 feet. A rig is up for Standard Oil Co.'s No. 1 Sanders, NE cor. SE NE, Section 27-10-1e. C. H. Wilson's No. 1 Louisiana Central, Section 34-13-1e, is drilling at 1,860 feet.

Scattered Wildcats

A derrick is up in Bienville Parish for Woodley & Collins' No. 1 Thomas, NW cor. NE SW, Section 23-16-10. Magnolia Petroleum Co. has taken over S. B. Goodman's No. 1 Montgomery, SE cor. NW, Section 8-10-9e, Catahoula Parish, and is drilling at 2,620 feet. In Lincoln Parish, Arkansas Fuel Oil Co.'s No. 1 Cooper, Section 3-20-4w, is drilling in lime and shale at 2,332 feet. In Natchitoches Parish, Davison and associates' No. 1 Guellat, Section 47-7-5, is drilling at 1,726 feet and a derrick is up for their No. 1 Williams, 990 feet west and 330 feet north SE cor. Section 31-8-5. Forrest, trustee's, No. 1 Ayers, Section 3-13-7, is drilling in lime at 1,987 feet. Minnesota Oil Corp.'s No. 1 Wattermark, Section 7-5-3w, Rapides Parish, is rigging.

GULF COAST FIELDS

(Continued from Page 41)

purposes only. The case will be argued July 17.

Spindletop

When the Yount-Lee started operations on the southeast side at Spindletop it was reported the company had practically all the acreage under lease and the finding of a sand and the successful completions of the first three wells caused but little interest in the development. As other successful completions were made operators commenced to take notice and investigations disclosed that considerable acreage was still open for leasing. This land was taken up and rigs moved in until something of a boom is apparent there. The Yount-Lee Oil Co. is drilling No. 1 Trembly at 1,655 feet, rigging No. 7 McFadden and has derricks up for Nos. 6 and 7 Gladys. It is also rigging No. 1 fee, with a derrick standing for No. 2 and a location for No. 3 fee. By the end of next week that company will have seven rigs running. The Gulf Production Co. is drilling No. 2-A Weed around 1,455 feet with a derrick up for No. 3 Weed. Rigs are going in for Nos. 1 and 2 Jeanette Mann and derricks are up for Nos. 1 Oakland and No. 1 Jack & Duff. The Sun Oil Co. is drilling No. 2 McLean at 980 feet. The Rio Bravo Oil Co. has a derrick standing for No. 2 T. & N. Railway. Marrs McLean has a location for No. 1 fee, Deutser, trustee, a location for No. 1 Scharbareuer. The Kishi Development Co. one for No. 1 Ewing and Hines Brothers one for No. 2 Quinn. O. Barbee's No. 1 Garrick is around 2,344 feet. Bown-Williams' No. 1 Gladys is shut down. In the old caprock area, the Unity Oil Co. is rigging Nos. 88 and 89 McFadden and Porch & Telshaw No. 5 Trembley.

Neither The Texas Company nor the Humble Oil & Refining Co. has entered the pool as yet. The Texas Company drilled several deep tests there some four or five years ago, as did the Gulf Production Co. and last year the Rycade Petroleum Co. tried to find the elusive deep sands without success.

The Yount-Lee Oil Co. is a close corporation organized by Frank Yount T. P. Lee, his brother; E. F. Woodward and Thomas Phelan. Mr. Yount has charge of the company's operations. T. P. Lee and E. F. Woodward are officials of the Republic Production Co., a J. S. Cullinan interest. Yount, Lee and Woodward are all practical drillers with wide experiences in the coastal pools. The company has been successful from its organization, starting in the Sour Lake Pool where it opened a deep sand on the southwest side. It has also been active in the Hull Pool and has wildcatted extensively in south Louisiana. It is currently reported the company has uncovered a promising prospect at Hackberry Island in the southeastern part of Cameron Parish, Louisiana.

The company started wildcatting of the southeast side at Spindletop in 1925 and in January last brought in No. 3 McFadden at 3,015 feet, making 5,000 bbls. initially, 19 gravity, the oil registering a temperature of 70 degrees. It it now averaging 450 bbls. The company switched over to the Gladys City tract on the north and west side and found a deep sand there.

On the southwest side of the Sour Lake Pool, the Yount-Lee Oil Co.'s No. 1 Lynn is drilling around 4,100 feet and Humphreys corporation's No. 2-A Bashara is at 3,345 feet and No. 2-B Bashara around 3,400 feet. The Sun Oil Co.'s No. 1 Libby is at 4,323 feet. The Orange Petroleum Co.'s No. 1 Merchant is at 2,610 feet. The Gulf Production Co.'s No. 1 McLean is drilling below 3,090 feet. Eunice and others have a derrick up for No. 1 Eunice.

The Gulf Production Co. acquired 30 acres in the deep sand area from Falloure, Eberts and Hebert for a consideration of $150,000. The Humble Oil & Refining Co. paid $10,000 to Mrs. Cora Lee Jackson for 10 acres in the same area. Both companies will start drilling operations at once.

Hull and Orange

On the east side of the Hull Dome, the Republic Production Co.-Houston Oil Co.'s joint No. 126 Dolbear is fishing at 1,160 feet. No. 132 is at 1,175 feet. A derrick is standing for No. 133. No. 134 is drilling around 2,080 feet. The Humble Oil & Refining Co. has increased the scope of its operations in the pool. Its No. 1 Lynn is drilling around 3,076 feet. No. 1 Bevers is at 765 feet. No. 6 Merchant is idle with a location made for No. 5. A derrick is up for No. 22 Guedry. The Mecom Oil Co.'s No. 9 Taylor is at 1,235 feet. The Empire Gas & Fuel Co. has a location for No. 20 Barngrover and a derrick up for No. 21. The Peer Oil Co.'s No. 4 Harrison is rigging to work over. The Texas Company's No. 1 Hannah is idle at 3,850 feet. The Texas Co.-Vacuum joint No. 2 Hannah is fishing at 2,425 feet. No. 4 Merchant is working over. The Gulf Production Co.'s No. 17 Thomas is sidetracking at 2,655 feet and No. 19 is drilling around 3,655 feet. A derrick is standing for No. 70 Phoenix. No. 18 Baldwin is drilling around 3,090 feet. No. 18 Hannah fee is at 2,760 feet. No. 18 Scarbrough is drilling at 1,366 feet.

In the Orange Pool, the Gulf Production Co. has a derrick up for No. 6 Peveto. Its No. 11-A Kishi-Lang is drilling below 4,700 feet. No. 4 Hager fee is around 3,000 feet. No. 1 Hager-Moore is at 3,633 feet. No. 6 Winifree is around 3,280 feet. The Supreme Oil Co.'s No. 1 Jackson is at 3,345 feet. The Texhoma Oil Co.'s No. 5 Chesson is sidetracking at 2,000 feet. No. 15 is deepening at 4,780 feet. The Humble Oil & Refining Co.'s No. 4 Winifree is rigging and a location has been made for No. 27-B Chesson. The Brownie Babbittee Oil Co.'s No. 12 McLean is rigging. The Rex Petroleum Co.'s No. 2-B Carbello is rigging. The Orange Petroleum Co.'s No. 3 Winifree is drilling around 3,655 feet.

Goose Creek and Other Pools

At Goose Creek, the Humble Oil & Refining Co.'s No. 12 Peninsula is drilling at 3,190 feet with a derrick up for No. 17 and No. 22 drilling around 3,618 feet. No. 68 Smith is at 4,790 feet and No. 69 Smith around 2,655 feet. The Gulf Production Co. is rigging No. 25 Smith and No. 6 Hirsch is at 2,123 feet. No. 7 Wright is at 4,235 feet. No. 12 Chapman-Bryan is around 4,235 feet. The M. & B. Oil Co.'s No. 4 Scorrgea, northwest of production, is drilling around 4,375 feet.

At Blue Ridge, the Gulf Production Co.'s No. 7 Blakely is at 3,900 feet and No. 3 Invincible deepening at 2,735 feet. Abercrombie and others' No. 1 West-Schenck is deepening at 3,316 feet.

At Pierce Junction, J. F. Bashara is rigging No. 1 fee. The Rio Bravo Oil Co. has started drilling No. 3-P Settegast. The Texas Exploration Co.'s No. 100 Dooley is drilling around 705 feet with a location for No. 1 Bender. The Gulf Production Co. is working over No. 11 Taylor.

The Houston Production Co. is rigging No. 1 Santa Fe and the Gulf Production Co. No. 1 Cruse in the Batson Pool. The Rio Bravo Oil Co. is deepening No. 5 Cotton in the Saratoga Pool. The Texas Co.'s No. 4 Abrams at West Columbia is drilling around 3,000 feet.

In the South Liberty Pool, the Humble Oil & Refining Co.'s No. 2 Welder on the west side of the Trinity River is at 3,910 feet. The Peer Oil Co. is working over No. 1 Harrison. The Premium Oil Co.'s No. 1 Mitchell is around 2,915 feet. The Coastal Oil Co.'s No. 1 Lecoure is shut down at 2,950 feet.

The Sun Oil Co.'s No. 8 Cade at High Island is at 4,306 feet. Gulf Production Co.'s No. 5 Smith is at 4,566 feet and No. 2-A Smith is around 2,500 feet.

At the Nash Dome in Brazoria and Fort Bend Counties, the Rycade Petroleum Co.'s No. 7 Wisdom is at 1,413 feet and No. 8 Wisdom is around 2,655 feet. No. 8 Nash is drilling at 3,966 feet and No. 9 has started drilling.

The Gulf Production Co.'s No. 7 Moore at Orchard Dome in Fort Bend County is at 2,670 feet. The Bennett Production Co. set casing in No. 3 on the north side of Barber Hill in Chambers County. At Markham, the Rycade Petroleum Co.'s No. 2 Kountze is drilling around 2,214 feet. The Houston-Gulf Gas Co. has started No. 2 Kountze, west of the pool.

South Louisiana Pools

The Rex Petroleum Co.'s No. 3 Hunter at Edgerly, is drilling at 3,050 feet. The Dtysdale-Savoy Oil Co.'s No. 2 Hill is drilling at 2,650 feet. The Gulf Refining Co.'s No. 25 Bright Penn is drilling at 2,850 feet.

The Vacuum-Gulf's No. 7 Miller, at Lockport, is flowing by heads at the rate of 150 bbls. a day at 4,375 feet; No. 8, drilling at 3,600 feet; No. 11, drilling at 3,760 feet; No. 12, location; No. 1 Farquahar, derrick; No. 3 Bordages, drilling at 1,050 feet; No. 4 Lock-Moore, drilling at 5,040 feet. Bayou D'Inde's No. 1 State, rigging up.

The Port City Oil Co.'s No. 6 S. F. S., at Jennings, is drilling at 400 feet. The Jennings Oil & Gas Co.'s No. 1 Medlenka, drilling at 1,700 feet. The Gulf Refining Co.'s No. 30 Jennings-Clement, drilling at 1,850 feet. F. I. Getty's No. 3 Clement, drilling at 1,792 feet.

At the Boling Dome in Wharton County, Texas, the Vacuum Oil Co.'s deep test in No. 1 Hooper is drilling around 5,150 feet in shale and sand with streaks of rock salt. The Texas Company's No. 8 Taylor is at 4,235 feet. No. 1 Felder is around 3,500 feet. On the northeast side of the dome, the Sun Oil Co.'s No. 2 Farmer is around 355 feet and The Texas Company's No. 1 Farmer is rigging.

Coastal Wildcats

It has been an uneventful week as far as the wildcats are concerned. The Roxana Petroleum Corp. is reported late in the week to have a showing in No. 2 Clements prison farm in the southern part of Brazoria County, around 2,200 feet. No. 2 Allen in that section, is around 4,700 feet.

Over to the west, but in Matagorda County, the Gulf Production Co.'s No. 1-A Turner at Van Vleck is drilling around 1,850 feet and the Humble Oil & Refining Co. spudded in No. 1 Robbins. Around the Hawkins Dome in that County, the Gulf Production Co.'s No. 1 Sanborn is drilling below 2,900 feet and No. 1 Parkinson at 2,435 feet. The Shepherd Mott Oil Co.'s No. 2 Hawkins is fishing at 3,135 feet.

Benedum & Trees' No. 1 Kennedy, southeast of the Humble Pool, Harris County, is drilling in blue gumbo at 2,590 feet. This test is being watched very carefully and changes of formations are cored. The Brane Oil Co. is rigging north of Spring. Kelly and others' No. 1 Lipper, near Aldine, is below 1,800 feet. The Kane Production Co.'s No. 3 Foster is around 1,775 feet.

In Liberty County, the Harrison Oil Co.'s No. 2 Schlender and Poor Boy Oil Co.'s No. 2 Pruitt are both fishing around 4,075 feet. The Schlender is on the southwest side of the Dayton Pool and the Pruitt on the east. The Sun Oil Co.'s No. 3 Masterson, at Felicia, is shut down at 2,055 feet. George Leland has spudded in No. 2 Grogan Lumber Co. lands.

In Chambers County, The Texas Company is rigging No. 2 League, 6 miles northwest of Wallisville. W. C. Moore's No. 4 Blencke is around 1,250 feet. Paggi Oil Co.'s No. 1 Jackson is at 1,565 feet. It is on East Bay Bayou.

At Long Point in Fort Bend County, the Gulf Production Co.'s No. 12 Davis is drilling around 2,100 feet.

In Jefferson County, at Big Hill Dome, the Houston Oil Co.'s No. 2 Sun-Dyson is around 1,225 feet. No. 1 Pipkin-Davis is shut down at 2,940 feet. At Fannette Dome, the Gulf Production Co.'s No. 2 Bordages has a fishing job at 3,650 feet, and No. 8 Thomas is around 1,400 feet. The Port Arthur Development Co.'s No. 3 Westbury is sidetracking at 1,600 feet.

In Angelina County, Flannigan Drilling Co.'s No. 1, at Lufkin, is shut down in a water sand. A derrick is up for No. 1 Singleton, north of Lufkin, and a location made for No. 2 Singleton.

The Howard Oil Co. is starting No. 1 Nichols in Montgomery County.

In Milam County, Williams and Thompson are rigging No. 1 Roark with a derrick for No. 2, and locations for Nos. 3 and 4. Fritz Fuchs, of Thrall fame, is drilling No. 1 Seidel.

Runs by the Magnolia Pipe Line Co. from the Luling Field during June were 365,699.26 bbls. and from the Lockhart (Lytton Springs) Field, 89,301.39 bbls. The runs from the Mirando districts were 108,842.60 bbls.

Tank car shipments from the Mirando districts during June were 441 cars, a decrease of 270 cars compared with May. Only six tank car loads were shipped from Noledo (Piedras Pintas) in June against 28 cars in May.

TROPICAL OIL CO. HAS PRODUCTION IN COLOMBIA

(Continued from Page 42)

be prohibitive, but the Gulf seems to think it has the problem solved by making arrangements with the Venezuela Government to cross the border and operate the concession in conjunction with its Venezuela property which is located in Lake Maracaibo and on the way out to sea.

Expect Concession Settlement

The Gulf paid $1,500,000 for the Barco concession only to have the Colombia Government cancel the concession within two weeks after the deal was closed, claiming the former holders did not push development; but it is the consensus of opinion here that this trouble will soon be ironed out.

The Hammond Concession joins the Tropical Oil Co. on the north, and is 370 miles up the Magdalena River, 35 miles east to Puerto Wilches, and contains numberless live oil seeps which in places will not support the weight of a man. A well was being drilled when the Gulf took the property over and it came in quite unexpectedly at 900 feet with a tremendous gas pressure and 200 bbls. of 34 gravity oil. After flowing several days it became ignited from forest fires but

was finally subdued by partially choking itself down, there being 200 feet open hole. The company is enlarging the camp and moving in a rotary outfit and large stocks of supplies and will start drilling two wells at once, one with cable tools.

Colombia Syndicate, which is backed by the Tidal Osage Oil Co. and Atlantic Gulf & West Indies Steamship Co., has a large concession adjoining the Tropical and South American Gulf Concessions and as promising territory as theirs. This acreage was formerly controlled by other parties who drilled three wells with cable tools, none of which reached a satisfactory completion. One encountered a heavy gas pressure, killing the American driller and two native helpers; one of the others is a 12-bbl. pumper at 2,347 feet, the oil very high gravity, and the third had a good showing.

The new organization is moving in a rotary outfit and expects to begin operations about the last of August and drill a series of three deep tests. Prospects are good for the opening up of a new field.

Met Many Difficulties

Richmond Oil Co. (Standard of California) has met with almost all known difficulties of the oil fields in the drilling of its three wildcat locations. On a location 30 miles west of Barranquilla, the first hole was started with a rotary and drilled to 1,290 feet and lost. The derrick was skidded and the second hole started with cable tools and also lost at 1,462 feet. Skidding the derrick again, the company reached the depth of 1,147 feet when the bottom joint of 12½-inch collapsed. By the use of a ripper the entire string was recovered with the exception of 69 feet which is being sidetracked. The grief on this location was caused by heaving shale and shifting formation which carries a showing of oil and gas. In another location, about 250 miles south, the company reached a depth of 3,746 feet after a good deal of casing trouble. This hole has the appearance of being a duster but the third well is different. It is flowing hot salt water from 3,618 feet and with South America's worst drought on, there is not enough fresh water for operations.

Shifting Formations

Coastal Oil Co. is an English company and is having two wells drilled by an American contractor but has met with no success the past 18 months. Its test on the Sinu River in western Colombia has been shut down for water until recently. It reached a depth of 2,700 feet with rotary. Its other location is 6 miles south of Puerto Colombia in territory where seven wells have been drilled, over a period of several years, one being about 2,800 feet, all the tests showing more or less oil. The present test is at 1,015 feet and the shifting formation has caused considerable casing trouble. This well is about 39 miles northeast of the Richmond troublesome location. It appears there is just enough oil along the coastal region to encourage operators and enough heaving, shifting formation to discourage anyone.

British Oilfields of Colombia has a large concession in the Sinu River district and is preparing to move in a spudding outfit to use in geological work.

Transcontinental Oil Co. (same as Transcontinental of Mexico—the Standard) has reached a depth of 1,614 feet with cable tools on its wildcat test near Honda, 450 miles up the Magdalena River, and now shut down for water.

The Granada Oil Co. has been taken over by the Magdalena Syndicate, which is controlled by McFadden and the Carib Syndicate. It is not making any attempt to start development.

It is rumored that the Lobitas Oilfields, Ltd. (same as British Controlled Oilfields of Venezuela and Trinidad) has geologists making two locations on its property adjoining the Tropical Oil Co., but has not established headquarters in Colombia at this writing.

There is talk of a new company coming in, to be known as the Interocean Oil Co., but so far has not materialized.

With practically all of Venezuela being taken up and picked over time and again, it may be expected that Colombia will get the call over other Latin American countries for the next two years, and no doubt a number of new companies will be registered here within the next six months. It is rumored the Dutch-Shell is coming in.

REVIVAL OF SPINDLETOP RECALLS HIGGINS' DREAM

(Continued from Page 41)

opened the field was the only resident of the Beaumont district who believed oil underlay his farm, and he was regarded as a dreamer with whom the wish was father to the thought. Brown writes that Lucas and his associates were to hold a conference on whether or not to abandon the well as a failure (as a sulphur test) when the oil began to flow. Fifty million barrels of crude was recovered, he says, from the Patillo Higgins 150-acre farm alone.

The Spindletop Field was one of the greatest sensations in all the history of oil. Derricks were built so close together that it was almost possible to step from one to the other. Beaumont grew from a quiet little town of 8,000 to a large and important oil center of 60.000 population and one of the most important oil cities in America.

The Yount Lee Oil Co. is responsible for the discovery of the deep pay, which is in the 3,300-foot horizon and which produces a better grade of oil. On November 13, 1925 a 3,500-bbl. well was completed in the old territory and this was followed by other good wells. In last week's Oil and Gas Journal the completion of a number of wells, one of which was good for 9.600 bbls. brought the production up to 26,000 bbls. making it once more a major pool.

CANADIAN FIELDS

(Continued from Page 50)

feet and drilling open hole for 10-inch casing. The 12½ inch is down to 2,100 feet. If the formation stands up as at present, open hole will be continued to 3,000 feet. Home Oil Co., LSD 10, Section 2-19-2w5, has finished cementing in the 15½-inch casing at 1,100 feet and will resume drilling as soon as the cement hardens.

Highland Oils, Ltd., LSD 5, Section 5-20-2w5, is down 160 feet and getting ready to cement the 20-inch casing. New Valley Oils, Ltd., LSD 4, Section 6-21-2w5. 4½ miles north of the Royalite No. 4, has spudded in and is reported drilling around 50 feet. This test is on the east or outer side of the range of hills flanking the east side of the Turner Valley, and it is claimed the structure favors a larger production here than in the Turner Valley itself.

Calmont Oils, Ltd., LSD 2, Section 1-20 3w5, spudded in last week and is reported drilling at 36 feet. British Dominion No. 1, LSD 4, Section 5-20-2w5, cemented the 20-inch casing at 200 feet and has resumed drilling. The casing is down past all surface water.

Merland Oil Co. is getting ready to drill a new test in Section 22-20-3w5. Co-Operative Oil Service has a test spotted in LSD 8, Section 1-20 3w5, and is arranging for drilling equipment. Hyde Park Oils, Ltd., capitalized at $1,000,000, with office at Calgary, is planning to drill on acreage in the Turner Valley. Empress Oils, Ltd., organized under Dominion charter with $1,000,000 capitalization and office at Calgary, will drill in LSD 13, Section 5-20-2w5, a mile east of McLeod No. 2. An unfinished test standing at 1,128 feet may be completed, or a new hole undertaken. Drilling equipment is now being secured for the test. Officers of the company are: President, F. S. Selwood; vice president, Dr. Frank Mayhood; secretary, Col. G. W. H. Millican; treasurer, Phineas Waterman.

McDougall-Segur Exploration Co. held its annual meeting at Calgary recently. The following officers were elected: President, F. M. Graham; vice president, R. J. Hutchings; directors, T. M. Carlyle, J. I. McFarland, G. H. Ross, Dr. L. S. Mackid, D. J. Young, William Pullar, J.

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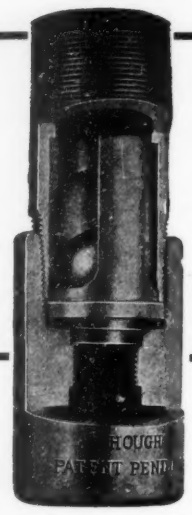

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Federal Oil & Gas Co. and Beaver Oils, Ltd., are holding meetings of their former shareholders with a view to reorganization. Both companies were active in the 1914 boom, and efforts are being made to reinstate them.

Border Field

In the Border Field east of Coutts, Imperial Oil-Erickson Coulee, LSD 13, Section 8-1-12w4, is down 2,372 feet and drilling. As soon as a hard formation is reached the rotary outfit will be dismantled and the hole continued with the standard outfit. The rotary equipment will be moved to Imperial Oil-Burdett No. 1 in the Bow Island Field. The latter has derrick nearly completed.

In the Ribstone Field, eastern Alberta, location is being cleared for the Imperial Oil, Ltd., test in Section 10-43-3w4, and equipment for this test is being shipped.

In the foothills 25 miles west of Calgary, in the Jumping Pound district, Imperial Oil-Bow River No. 1, LSD 15, Section 12-25-5w5, is down 2,620 feet and drilling. In the Highwood section of the foothills, Imperial Oil-Highwood No. 1, LSD 3, Section 36-18-3w5, is rigging up, but has been delayed by bad roads, hindering the moving in of the equipment.

In the southern foothills west of Nanton, Imperial-Rice Creek, Section 4-14-2w5, is down 4,455 feet and drilling.

In the Turner Valley Field, Cooper Nanton Oils' No. 1, LSD 2, Section 7-20-2w5, is at 180 feet and drilling. New Black Diamond No. 1, LSD 1, Section 3-20-3w5, is drilling.

In the Moose Mountain district, Reserve Oils, Ltd., on the Morley Indian reserve, is working around 1,100 feet with a diamond drill test. Signal Hill No. 2, LSD 9, Section 34-23-5w5, spudded in last week with a 24-inch hole, and at last reports was down 30 feet and drilling. The well was christened with a bottle of crude from the old Moose Mountain No. 2 of Calgary boom days. A standard outfit with 84-foot derrick is being used, new features being a 7-shift crown block and 4-shift casing block in place of the six-and-three usual in the Alberta fields. H. M. B. Inglis is field supervisor, with Vergil Sine and Boyd Stewart as drillers. Signal Hill No. 1, on the same section, is at 2,025 feet and working on casing.

Prince of Wales Ranch

The outlook is for considerable activity around the Prince of Wales' "E.P." ranch in southern Alberta. Oil men have already filed on all the deed land in the ranch, but the Federal government has refused applications for leases on the leased grazing land comprising most of the ranch acreage. The E.P. ranch is part of the Sinclair structure. Six miles north Banner Oils will drill in Section 34 or 35, Township 17-3w5, and Jewel Oils, Ltd., will drill in LSD 6, Section 34-17-3w5. These are near the old Calgary-Alberta well, which in 1914 got shallow oil showings at 227 feet. In the same area 6 miles north, tests will be drilled this summer by the McLeod-Walsh syndicate, British Merchant Petroleum Co. and Wabash Oils, Ltd., though definite locations have not yet been made. Still further north, toward the Turner Valley Field, Glenbow Oils, Ltd., will drill in LSD 13, Section 3-20-3w5, while the Waite Valley Syndicate and Alberta Associated Oil Fields, Ltd., have acreage leased. Immediately north of the E.P. ranch the old Christie well of Alberta Associated Oil Fields, Ltd., was drilled approximately 3,000 feet but had to be abandoned unfinished owning to casing trouble. Wabash Oils, Ltd., will drill its No. 2 well on the Sinclair structure, while No. 1 will be drilled on a new structure in the Calgary district. The McLeod-Walsh Syndicate is working on camp for its test on the Sinclair structure. Banner Oils, Ltd., has ordered a string of tools for its test.

In the Border fields, on the Montana side of the Cope Development Co., Section 23-35-2w, reports a show of oil at 1,510 feet and is making a production test. At Sweetgrass, Monalta-Johnson No. 1, Section 3-37-4w, has set 8-inch casing at 2,540 feet and is drilling at 2,608 feet with a small show of oil and more gas. On the Quarantine reserve near Coutts, Urban Oils, Ltd., No. 1, Section 4-1-15w4, is underreaming to reset the 4½-inch casing at 2,942 feet with a packer to prevent water flow. The well is down 2,988 feet.

Wainwright Field

In the Wainwright Field, Fabyan Petroleums, Ltd., LSD 8, Section 24-45-8w4, has a rig up ready to spud in. On the Ribstone-Blackfoot anticline Oil Producers Corp. of Canada is arranging to bring in a drilling outfit from the Kevin-Sunburst Field. The location will probably be made this month, the Oil Producers acreage including parts of Townships 44-2w4 and 45-1w4. Other locations in this area include Imperial-Ribstone No. 1, Section 5-45-1w4; Oxville Oil & Gas Co., Section 10-45-2w4, and Ribstone Petroleum's No. 1, Section 10-43-3w4. Imperial Oil, Ltd., has 7,000 acres leased on this structure. Several other companies have acreage and are planning development this summer. It is expected production, if any, will be secured in about 2,000 feet of drilling.

SOUTHWEST TEXAS

(Continued from Page 44)

for No. 3 is 618 feet from the north line and 150 feet from the west line. Houston Gulf Gas Co. reported last week got a good well in the southwest corner of the south half of Block 12. On the pump it is making 150 bbls. No. 2 is rigging up in the northwest corner of the lease and Moody Oil Corp. has spudded in in the southwest corner of the north half of Block 12 to offset Houston Gulf Gas Co.'s No. 2.

Other Producers

Staley & Wynne swabbed 125 bbls. in No. 8 Bruni at 1,726 feet in the southwest corner of Block 18 and swabbed 300 bbls. in No. 10 at 1,722 feet, 150 feet east of the center of the west line of Block 18 and due north from No. 8. Derrick is up for No. 11 located 150 feet from the east line of the west half of Block 18 and 510 feet north of the south line. Sun Oil Co.'s No. 3 Bruni is a 150-bbl. well, located 150 feet from the north line and 550 feet from the west line of the east half of Block 45. Ruthada has the derrick up for No. 3 Bruni, 300 feet east of No. 2 which is in the northwest corner of the east half of Block 18.

Gibson Oil Co., developing the north 60 acres out of the west half of Block 13, has completed No. 9 swabbing 300 bbls. and No. 15 is swabbing 250 bbls. and has casing set and ready to drill in on Nos. 5, 7 and 11 and is drilling on others.

Simms Oil Co. is moving in rig on Survey 835, located 500 feet from the south line and 1,100 feet from the east line. This brings it about 800 feet east and south of No. 2 which was a gas well. O. W. Killam on Block 7 of Survey 835 considerably north of Simms plugged back from 2,800 feet and brought in a 25,000,000-foot gas well at 1,638 feet.

Crown Central's deep test, No. 10 Garcia, on Lot 56 of Section 606 in the older part of the field north of the Aviators Pool, is drilling at 1,300 feet. Jackson and others' No. 1 Garcia on Survey 606 is drilling at 1,600 feet. Neal-Ramsland's No. 1 Lopez on Survey 309 south of the Bruni tracts is drilling at 1,480 feet.

Webb County Wildcats

O. W. Killam's No. 1 Driver, on Survey 52, a few miles southwest of the Carolina-Texas Field reported last week as abandoned at 2,523 feet, is to be abandoned only temporarily. Water for drilling is scarce all through the Laredo country and as soon as water is available the Driver will be drilled deeper. The rig is not being removed. There are two plays from the Carolina-Texas Gas Field, one to the southeast and one to the southwest and the Driver well is a test to the southwest.

Magnolia Co. is rigging up on No. 1 Neal, in Block 12 of Survey 132. Humble Oil & Refining Co. bought 500 acres from Usher Carson, 3 miles southwest of the Cole Gas Field in Webb County. Na-

tional Refining Co. and Lewis Oil Corp. have spudded in their test in the northeast corner of Survey 700, about midway between the Cole and Carolina-Texas gas fields. Burns & Malone are drilling at 2,850 feet in No. 1 Coe, on Survey 51, southwest of the Carolina-Texas Gas Field. The Lane-The Texas Company well, in the townsite of Laredo, being drilled for artesian water for the city, is down 2,160 feet. W. C. Ritchison's No. 1 Billings, on Survey 71, a few miles northeast of the Carolina-Texas Field, is drilling at 2,230 feet.

Duval-Cole Gas Field

George M. Ball is drilling at 2,500 feet in No. 1 Roach, several miles east of the Cole Field. Cole Petroleum's No. 25, on Section 18, Block 1, is arranging to test a showing of oil at 1,970 feet. Cole's No. 26, in Block 9 of Section 10, is plugging back to complete at 1,746 feet. Houston Oil Co.'s No. 3, which was deepened to 2,714 feet where it had a sand, tested dry. Barkley-Meadows and Morgan's No. 1 King Harper, on Section 323, a little north of the oil area in the Cole Field, is drilling at 200 feet.

Piedras Pintas Field

Humble Oil & Refining Co. completed drilling No. 5 Walsh, at Noledo in Duval County on the Piedras Pintas Salt Dome, down to 3,350 feet after coming back from 4,110 feet and whipstocking through the casing and started to swab the well last week after bailing and lost the swab in the hole. No. 6 Walsh, a little to the east of the discovery oil well, is drilling at 3,332 feet. Humble's No. 4 Walsh, the discovery well producing at 3,623 feet, was responsible for six tank cars of oil or about 1,440 bbls. of oil being shipped out during the month of June. This is an average of approximately 44 bbls. a day. Magnolia Petroleum Co.'s No. 1 Speer, a little to the northwest of the discovery well, is drilling at 3,710 feet and having some more boiler trouble.

Humble's No. 9 Singer, on the Palangana Salt Dome, a few miles to the northwest, is drilling at 348 feet, and No. 5 Schallert, at 240 feet. Simms Oil Co.'s No. 1 Schallert has set and cemented casing at 3,595 feet and will drill out the plugs and test this week.

Duval Wildcat Tests

O'Hern, Putnam & Seacord's No. 1 Servando Benavides, in Block 12 of Section 174, 5 miles south of the Cole Gas and Oil Field, is drilling at 995 feet in gumbo and encountering boulders. It has shown frequent sands in the log. Simms Oil Co.'s No. 1 Dinn, on Survey 606, reported last week as a gas well of importance in a new field, was opened for 35 minutes and cleaned itself thoroughly and gauged 5,800,000 feet of gas. A location has been made a half mile to the east, and No. 2 Dinn is rigging up. Operators are watching this test. The structure was worked out by R. F. Schoolfield, consulting geologist, formerly with the Roxana Corp., and the gas, so often associated with oil in the Mirando country, points to the possibility of another oil pool. Humble Oil & Refining Co.'s No. 1 Dowdy (fee) in northern McMullen County, is drilling at 1,718 feet. This is the fourth test in that area and all the other three had showings of oil and evidence of a structure. Murchison & Fain's No. 1 Peters, in west central Duval County, is drilling in gumbo and shale at 2,400 feet. Benedum & Trees' No. 1 Southerland is drilling at approximately 3,000 feet. Maurer & Duggan, on Survey 123, a few miles northwest of the Palangana Salt Dome, is drilling at 3,646 feet. J. T. Graham's No. 1 Beall, in the northeast corner of the county at 2,437 feet, started to drill out the plugs the latter part of last week. Moody Oil Corp.'s No. 1 Benavides, on the Mesquite ranch, a little southeast of the Cole Field, is testing at 2,090 feet.

Jim Hogg County

Magnolia Petroleum Co.'s No. 6 Merchant State Bank, in the northwest corner of Survey 415, at 1,233 feet, tested gas and drilling deeper, is down to 1,450 feet. It is in the south edge of present production of the Randado Field. The rig is a big type rig with a 112-foot derrick and having passed the horizon of shallow production it is to be made a deep test. Magnolia's Nos. 5 and 6 Palacious, in Block 7 of Survey 291 in the Randado Field, each made 60-bbl. wells on the pump. Derrick is up for No. 7, on the same block, one location north of No. 6. Wheelock & Collins' No. 3 Palacious came in swabbing 600 bbls. in Block 21 of Survey 291. Location has been made for No. 4 Palacious, in the same block, 476 feet from the east line and 150 feet from the north line. Black, Pearson & Hudson have made location for No. 4 Palacious, in Block 13. Simms Oil Co.'s No. 2 Weil, in Block 16 of Survey 81, located 300 feet west of No. 1, found only 3 feet of sand and made a 25-bbl. well. It is 300 feet west of No. 1, which extended the Randado Field three-quarters of a mile north and which is a 150-bbl. well that came in swabbing 500 bbls. Simms Oil Co.'s No. 7 Palacious, the latest completion in the older part of the field, came in at a total depth of 1,278 feet and is pumping 125 bbls. It is 300 feet north of No. 6, instead of that distance north of No. 4, as previously reported. Simms is moving in machinery for No. 8, which is one location north of No. 7, and have made a location for No. 9, one location north of No. 8. Grayburg Oil Co. is rigging up on its No. 1 Weil, in the southwest corner of Block 15 of Section 81, an east offset to No. 1 Weil of Simms. Houston-Gulf Gas Co.'s No. 10 Palacious is testing with a sand at 1,248-66 feet, the thickest sand yet found in the field. It is on Block 20 of Survey 291, and is 450 feet from the north line and 150 feet from the east line. Moody Oil Corp. is rigging up on its test in Block 13 of Survey 287, more than a mile east of the Randado Field. Moody Oil Corp.'s No. 5, in the Randado Field, in Block 20 of Section 291, has been deepened and reset casing. No. 6 set casing at 1,242 feet and is ready to drill in. Nos. 7 and 8 are drilling. Johnson and others' No. 4 Palacious is testing at 1,250 feet, with casing set. No. 5 is in and swabbed 500 bbls. a day. No. 6 is drilling in. All three are in the west end of Block 14.

Henne, Winch & Fariss Field

Kitselman & St. Albans Corp. has completed a total of eight producing oil wells on the Holbien ranch in Jim Hogg County, a little to the northeast of the Henne, Winch & Fariss Pool where they opened a new producing spot when they completed and brought in their No. 27 Holbien, April 6, at a total depth of 2,139 feet. In approximately three months they have completed seven other oil wells and are now completing a power pumping plant. Several other tests are on the sand ready to come in and as soon as the power plant is completed a more intensive drilling campaign is to be inaugurated. Six strings of tools are now working on Kitselman & St. Albans' wells and two more are being added and moved in. In addition to these, two extra heavy duty rigs have been purchased and will be moved in within a month or so to be used in drilling some deeper tests, going to the limit of depth. In the new drilling campaign a number of tests are scheduled on the south end of the companies' leases nearer to the Henne, Winch & Fariss Field. Humble, already has a pipeline running through the lease from its tank farm at Bruni to the Henne, Winch & Fariss Field and south to the Randado Field. Kitselman & St. Albans' No. 3 Holbien, on a Texas Pacific Coal & Oil Co. lease, is bailing at 2,133 feet. No. 4 Holbien, on a Texas Pacific Coal & Oil Co. lease, has the derrick up. No. 38 Holbien is drilling at 2,100 feet. No. 39 has spudded in. No. 40 is standing at 2,196 feet ready to be brought in. No. 41 is drilling at 700 feet.

Tide Water-Associated Co.'s No. 3 Lopez, on Block 40 of share 1 of the Las Animas ranch, north of the Kitselman & St. Albans' properties, is drilling at 1,000 feet. Its Nos. 1 and 2 were each gas wells. Magnolia Petroleum Co.'s No. 9 "B" Martinez, in the Henne, Winch & Fariss Field, is testing at 2,083 feet. No. 10 "B" Martinez is on a sand at 2,016 feet. No. 11 is drilling at 500 feet. No. 12 has the derrick up. They are all on Survey 276.

Jim Hogg Wildcats

Stein and others' Schroeder is on Survey 16 and in Jim Hogg County, instead of in Zapata as at first announced. Hoad and others' No. 1 Palacious, on Survey 247, southeast of the Randado Field, is rigging up. Simms Oil Co.'s No. 1 Leyendecker, on Survey 145, 5 miles south of the Randado Field, has set 4½-inch casing on a new sand at 2,188 feet and is ready to test. O'Byrne and others are rigging up on Block 14 of Survey 230, a little south of the Randado Field. L. M. Holden is making a test at 1,700 feet in No. 2 Jones, a few miles east of Hebbronville.

Zapata County

The Texas Company, which has drilled two deep tests near the old Jennings Gas Field, is planning to start a third that will contract to go to 5,000 feet and will be a much-watched test. No. 1 Jennings, at 3,965 feet, had a gas blowout that ran wild for a few days and was described as an enormous gas well. It was plugged and abandoned, and No. 2 Jennings, drilled to 4,685 feet, when the hole was most too small to go deeper. It plugged back and is seeking to make a test of a sand at 4,181-83 feet, but is now fishing for drill stem. The contract for the 5,000-foot test has been let to "Red" O'Connor.

The long prophesied increase in activity in Zapata County down along the Jim Hogg County line is getting under way. Turner & Moore of Corsicana will drill No. 1 Bustementa on the dividing line between the Charco de la India and the Comitas grants. O. W. Killam has abandoned No. 1 Hinnant at 1,620 feet on Block 41 of Survey 307 in the old Mirando Valley Field, and is drilling at 1,200 feet on No. 2 Hinnant, and is drilling at 1,000 feet on No. 3 Hinnant. Mauer & Duggan's No. 2 Cuellar has been abandoned at 2,162 feet on Survey 243. Benedum & Trees are rigging up on No. 1 Benavides, on Block 22 of the Villa grant. Magnolia Petroleum Co. is shut down at 1,290 feet in No. 1 R. Cuellar, in Survey 278, waiting for the laying of a water line from the Henne, Winch & Fariss Field. Rollin V. Hill has the derrick up and is moving in machinery on No. 3 Martinez, in the Villa grant. Hill & Perkins have abandoned No. 1 Yeager-Strohman, in Survey 258, at 2,152 feet. Cullinan & Clark's No. 1 Hinnant, in Block 9 of Survey 10, has been abandoned at 2,120 feet.

Atascosa County

Plateau Oil Co.'s No. 1 Tomlin, west of Anchorage in northwestern Atascosa County, is drilling at approximately 1,000 feet. Witherspoon Oil Co.'s No. 1 Turpe is drilling at 1,600 feet and getting ready to test. W. G. French has a derrick up on the Jaksik, in the northeastern corner of Atascosa and is waiting for rig.

Bastrop County

Amerada Corp. has abandoned its test at Cedar Creek in Bastrop County. Fred Adams is drilling below 1,000 feet in No. 1 Calloway, near Smithville.

Bexar County

Marland Oil Co., which is drilling in the Glenrose at a little below 2,300 feet in No. 1 Mihalski in eastern Bexar County at St. Hedwig, has been encountering a great deal of water and is endeavoring to mud it off with heavy mudd. Failing in this the test may be abandoned. It was intended, if it could be drilled through the Glenrose, to make a test of the Trinity. W. E. Rutledge, at 1,050 feet in No. 1 Brooks, a half mile from Cassin, has a showing of oil and is arranging to get casing and make a test. W. R. Hamilton, trustee, has spudded in on No. 12 Hughes, in the Somerset Field. Jonray Oil Co. has spudded in No. 2 Sueltenfuss in the Southton Field. George E. Ginter is rigging up on No. 9 Cotton Mill, located 300 feet west of No. 8 in the Southton Field. Utah-Texas (McClure) test on the Ivan Vick farm in the southern part of Bexar County at 2,929 feet is about 129 feet into the Edwards. The well is shut down and may be abandoned. Only surface casing was set. It is claimed there was a good showing at 2,858 feet. Storey & Stieren have abandoned No. 1 Coverin, southeastern Bexar County, at around 2,000 feet, when 100 feet into the Edwards.

Brooks County

Ballard & Underwood have resumed and are drilling at 1,805 feet in No. 1 Lassiter in the northeast corner of Brooks County on a salt dome that has never been tested for oil.

Caldwell County

John T. Storey has topped the chalk at about 2,230 feet in No. 1 McConnell in Caldwell County, south of Dale, on a structure that has attracted a great deal of attention. The Reiter-Foster No. 1 Alexander hit the chalk about 400 feet higher than that and the structure is evidenced still more by the Storey well. The Texas Company and Reiter-Foster are preparing to make a test to the southeast on the Denges farm which, from the logs of other wells, may succeed in picking up the pool.

Medina County

Arnett Oil Co. has spudded in No. 4 Nixon in Medina County, 2,000 feet southeast of No. 2 and in the south edge of the Ina Field. Golden West is drilling at 500 feet in No. 6 Schmidt, 300 feet north of No. 4 in the Ina Field. Kittle & Townley, in No. 1 Bendele, in Survey 593 in Medina County, are having trouble with water and have not been able to make a test at 960 feet where it had a good showing. Pat Armstrong and a brother are rigging up on the Lacey and King farms, northwest of Hondo, for two tests. North & West is drilling on the deep test on the Odom farm, southwest of Hondo, 3 miles. Alamo Drilling & Leasing Co. will spud in Thursday of this week on the Kennedy ranch for an Edwards lime test, the location being a mile east of the west Medina County line and a half mile south of the Sabinal road. Ina Oil Co. is drilling below 1,844 feet in No. 1 Hoffman, on Survey 535 and in the base of the Georgetown, and expecting to encounter the Edwards lime some time this week. Ina Oil Co. is drilling at 500 feet in No. 1 Charles Finger, on Survey 746, a few miles west of the Hofiman test. California-Medina Oil Co. has succeeded in joining together the casing that parted in the hole and is drilling again at around 3,110 feet. Schemerhorn Oil Co. is drilling at 1,250 feet in No. 2 Irrigation Co. land, southeast of Noonan, in eastern Medina County. J. R. McCaldin, at 2,240 feet is in the Austin chalk in No. 1 W. A. Thompson, a little west of Devine, and the log is thus shown to be running high compared with a well drilled years ago at Devine. Gibson Oil Corp and J. E. Walsh are shut down on both the Carpentier test on Survey 808, southwest of Ina Field and the Saathoff on Survey 847, south of D'Hanis, waiting for larger rigs to make deep tests. Golden West's Joseph Courand, southwest of Castroville, is drilling at 265 feet.

KANSAS FIELDS

(Continued from Page 43)

good for 25 bbls. after being shot with 120 quarts in sand at 1,575-1,624 feet. Theta Oil Co.'s No. 13, C SW SW, Section 10-23-13, had sand at 1,789-1,828 feet and made 15 bbls. in 24 hours after a shot with 10 and with 20 quarts. Mid-Continent Petroleum Corp.'s No. 8, C SW SW, Section 15-23-13, had sand at 1,771-83 feet, and was shot with 20 quarts, made 20 bbls. of oil and 10 bbls. of water. Manhattan Oil Co. and others' No. 12, NE cor. SW NE, Section 1-24-9, had sand at 2,263-2,313 feet and made 35 bbls. after a shot of 70 quarts. Ward McGinnis and others' No. 1, SE cor. SW NW, Section 30-24-11 had sand at 1,766-90 feet and made 450 bbls. after a shot of 100 quarts.

New Work

Manhattan Oil Co. is drilling at 460 feet in No. 3, NE cor. SE SW, Section 24-23-8. The rig is up for No. 10 Craft, NE cor. SW SW, Section 25-23-8. No. 1 SW cor. NW NE, Section 3-23-9 is drilling at 1,250 feet. Skelly Oil Co. has rigged up No. 7 Teeter, NE cor. SW NE, Section 15-23-9. The rig is up for No. 4 Teeter, NW cor. NW, Section 15-23-9. Empire Gas & Fuel Co.'s No. 35, SE cor. SE, Section 16-23-9 is drilling at 750 feet. White Eagle Oil Co. and others' No. 2A Norman, NW cor. SE SE, Section 19-23-9, is rigged up. R. Day and others' No. 3, NW cor. SE SW,

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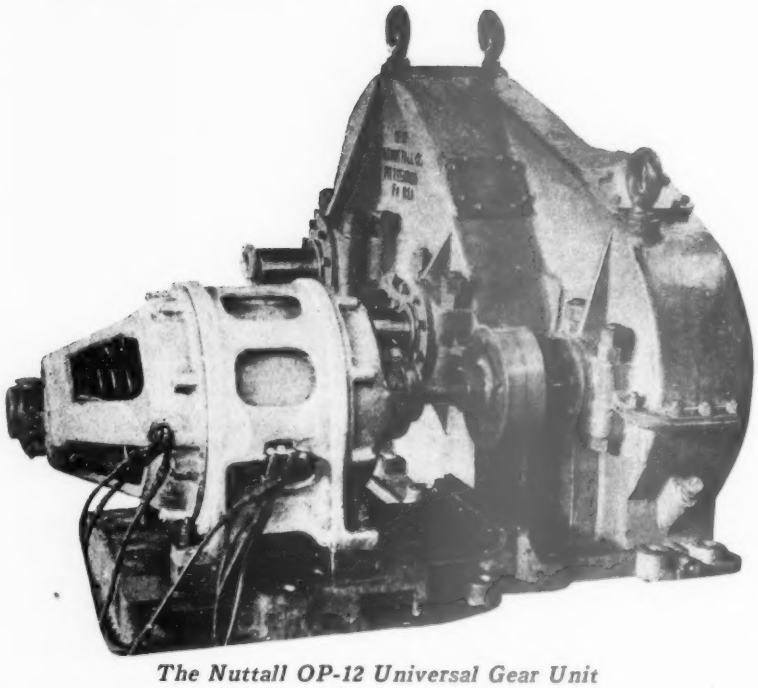

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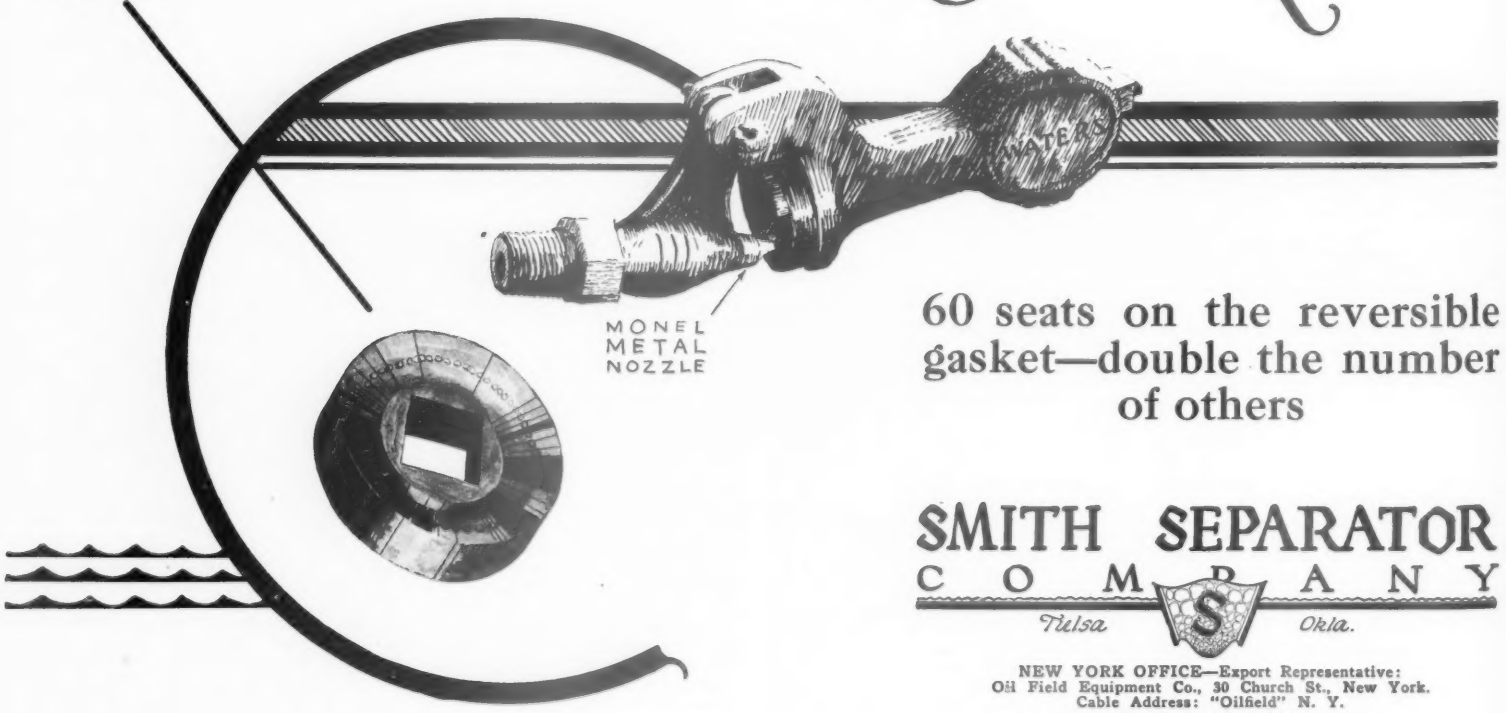

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Section 1-22-10 is drilling at 570 feet. Syndicate Oil Co. has rig up for No. 4 Fuller, SE cor. NW SW, Section 1-22-10.

Theta Oil Co.'s No. 13, SE cor. NE SW, Section 8-22-10 is drilling at 750 feet. White Eagle Oil Co.'s No. 4, SW cor. SE NW, Section 12-22-10 is drilling at 950 feet. Sinclair Oil & Gas Co. has the rig up for No. 45 Browning C south half SW, Section 20-22-10 and for No. 46 Browning, C east half SW, Section 20-22-10. The Texas Company's No. 10, CNL SW, Section 29-22-10 is fishing at 1,400 feet. Tidal Oil Co.'s No. 4, CEL SE NE, Section 30-22-10 is drilling at 360 feet.

Prairie Oil & Gas Co. has the rig up for No. 1 Hartley, NW cor. NE NW, Section 1-23-9. Empire Gas & Fuel Co. has rigged up No. 4 Thrall, CEL SE SW, Section 29-23-10. White Drilling Co. has rig up for No. 1 Curry, NW cor. SW SE, Section 13-22-11. Mid-Continent Petroleum Corp. has the rig up for No. 11 Clopton, C SE SW, Section 18-22-11. York State Oil Co.'s No. 11, SE cor. NW NW, Section 32-22-11, is drilling at 450 feet. The rig is up for the same company's No. 14 O'Neill, NE cor. NE SE, Section 32-22-11. Empire Gas & Fuel Co.'s No. 4, NW cor. SE SE, Section 4-22-12 is drilling at 750 feet.

Simmon sand others are fishing at 800 feet in No. 9, SW cor. NE SE, Section 4-22-12. Their No. 3 Holderman, NE cor. NW NE, Section 20-22-12, is spudded. The rig is on the ground for their No. 1 Freeman, SW cor. SE NW, Section 20-22-12. The Texas Company & Simmons have rigged up a machine for No. 3 Oliver, SE cor. NW SE, Section 8-23-11. The Amerada Petroleum Corp. and Simmons have a rig up for No. 3 Ellis, NW cor. NE SW, Section 24-23-11.

Mid-Kansas Oil & Gas Co. has the rig up for No. 19 Ladd, CEL SE NW, Section 19-25-9. Same company's No. 1, NW cor. SW, Section 20-25-9 is spudded. Manhattan Oil Co. and others are drilling at 750 feet in No. 2, SE cor. SW NE, Section 19-24-11. Their No. 3, NW cor SE NE, Section 19-24-11 is spudded. No. 2, SE cor. NW NE, Section 19-24-11 is drilling at 570 feet. Ward McGinnis and others have a rig on the ground for No. 7 Wiggins, SW cor. NW SW, Section 30-24-11. Syndicate Oil Co. has rigged up a machine for No. 2 Shook, NW cor. SW, Section 6-24-12. Tidal Oil Co. is drilling at 1,350 feet in No. 11, NE cor. SE SW, Section 2-26-8.

Empire Gas & Fuel Co. is drilling at 640 feet in No. 2, C NW NE, Section 7-27-9. Paul & Parker have spudded No. 1 Brockover, SW cor. SW, Section 9-26-10.

Sumner County

Sinclair Oil & Gas Co.'s No. 1, NE cor. SE SE, Section 24-33-2 had sand at 3,574-81 feet and swabbed 50 bbls. and is showing some water. Marland Oil Co.'s No. 1, NW cor. NE NE, Section 27-34-2 is dry and abandoned at 3,522 feet. Meridian Gas Co.'s No. 1, C NE, Section 8-30-2w, is dry and abandoned at 2,040 feet.

Roxana Petroleum Corp. has spudded No. 1 Clodfelter, SE cor. SW NW, Section 22-31-2, and has rigs on the ground for No. 1 Bromshire, SE cor. NW, Section 25-31-2, and No. 1 Ritter, SW cor. NE, Section 25-31-2. Marland Oil Co. has a rig on the ground for No. 1 Reese, SE cor. SW, Section 8-32-2. Prairie Oil & Gas Co. has a rig on the ground for No. 1 Olsen, NW cor. SE, Section 34-34-2. National Union Co. spudded No. 1 Mickley, SW cor. SE, Section 22-33-2w. Champlin Refining Co. has a rig on the ground for No. 1 Kelly, SE cor. SE, Section 19-30-3w.

200 Bbl. Well in Elk County

In Elk County, Watson and others' No. 1, NW cor. NE, Section 11-29-11 is dry at 1,900 feet. Selby Oil & Gas Co.'s No. 1, NE cor. NE, Section 18-29-11, is dry and abandoned at 2,293 feet. Kansas Central Oil Co.'s No. 1, CWL SW SW, Section 15-31-9, had sand at 1,461-78 feet with 5,000,000 feet of gas. Pure Oil Co.'s No. 7, CNL NW, Section 13-31-10, had sand at 1,313-45 feet, a 30-bbl. well. Same company's No. 10, C north half SE, Section 14-31-10 had sand at 1,343-53 feet, 7 bbls. in 24 hours. Union Gas Corp.'s No. 5 Green, SW cor. NE SW, Section 14-31-10, had sand at 1,340-56 feet and made 75 bbls. R. G. Gillespie's No. 3, CSL SE SE, Section 22-31-10, had sand at 1,628-30 feet and made 25 bbls. Watchorn Oil & Gas Co.'s No. 4, SE cor. NE SE, Section 22-31-10, made 25 bbls, after a shot of 20 quarts in sand at 1,641-50 feet. Theta Oil Co.'s No. 3 Webb, NE cor. SW SW, Section 23-31-10, 15 bbls. Well in sand at 1,608-18 feet. No. 4, CEL NE NE, Section 27-31-10, 35 bbls. from sand at 1,639-53 feet.

A. M. Landon's No. 1, NE cor. NE, Section 33-31-10 was good for 200 bbls. from sand at 2,350-51 feet. Theta Oil Co.'s No. 2, NE cor. SW, Section 3-30-12 had sand at 1,629-38 feet with 2,000,000 feet of gas. Byington and others' No. 1, SE cor. SW, Section 35-31-11 is dry and abandoned at 1,857 feet.

Chautauqua County

Robinson and others' No. 1, SE cor. SW, Section 21-32-11 is dry and abandoned at 2,160 feet. Prairie Oil & Gas Co.'s No. 1, NE cor. NW SE, Section 20-34-9 had sand at 1,755-70 feet and made 10 bbls. Trees Oil Co.'s No. 1, SW cor. SE NE, Section 20-34-9, had sand at 1,705-14 feet and made 12 bbls. of oil.

Cowley County

Smith & Ash's No. 1, CWL SW SW, Section 15-30-4, Cowley County, is dry and abandoned at 2,865 feet. Buckeye Oil Co.'s No. 8, SW cor. NE SE, Section 25-32-4, made 40 bbls. oil and 100 bbls. of water from sand at 3,090-97 feet. Roxana Petroleum Corp.'s No. 1, NE cor. NW SE, Section 36-33-4 is dry and abandoned at 3,596 feet. Shawver & Sutter have a rig on the ground for No. 2 Newton, SE cor. NW, Section 15-30-4, Cowley County. Lewis Oil Co. has spudded No. 9, SW cor. NE SW, Section 31-30-6. Marland Oil Co. has a rig on the ground for No. 1 Reese, SE cor. SW, Section 8-32-2.

T. B. Slick has rigs on the ground for two wells in the Oxford district: No. 1 Carson, SW cor. NW, Section 20-32-3, and No. 2 Carson, NW cor. SW NW, Section 20-32-3. Marland Oil Co. has a rig on the ground for No. 5 Rickwell, SW cor. NW NE, Section 13-32-4, and for No. 1 Graham, SW cor. NE, Section 15-32-4. J. A. Hull Co. has a rig up for No. 1 Wallace, NE cor. SW, Section 15-32-4, and for No. 2 State Land, SE cor. NW, Section 15-32-4.

Barber County

Rollins and others have spudded and shut down in No. 1, NE cor. NW NE, Section 27-30-14w, Barber County.

Harvey County

Liggett and others have spudded and shut down in No. 1, C NE, Section 10-23-3w, Harvey County.

Kingman County

Marland Oil Co. has a rig up for No. 1 Pojett, NE cor. SW, Section 11-28-6w, Kingman County.

Rice County

H. F. Wilcox Oil & Gas Co.'s No. 1, SW cor. NE, Section 35-20-6w, Rice County, is dry and abandoned at 3,550 feet.

Prairie Oil & Gas Co.'s No. 3, NW cor. NE SW, Section 35-20-6w, is drilling at 750 feet.

Russell County

Derby Oil Co. has a rig on the ground for No. 4 Dodge, NE cor. NW SW, Section 32-11-15w, Russell County. Snowden & McSweeney have the rig up for No. 4 Booth, NW cor. NE SW, Section 32-11-15w. Midwest Co., rig up for No. 34, SW cor. SE NE, Section 32-11-15w. Valerius Oil & Gas Co., drilling at 650 feet in No. 19, SE cor. NW, Section 17-12-15w.

Coffey County

Kimbley and others have a dry hole at 1,775 feet in No. 1, SE cor. SE, Section 18-21-14, Coffey County. Scott Creek and others' No. 1, SE cor. SW, Section 23-21-16 is dry and abandoned at 1,880 feet.

Butler County Completions

Phillips Petroleum Co. has a dry hole at 3,282 feet in No. 1, SE cor. NE NE, Section 12-23-6. Skelly Oil Co.'s No. 1, NE cor. SE, Section 24-22-8, is dry and abandoned at 2,805 feet. Empire Gas &

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The Pittsburg Boiler and Machine Company

PITTSBURG, KANSAS

Fuel Co.'s No. 71, NW cor. SE SW, Section 17-26-5, had sand at 2,505-30 feet and made 10 bbls. Kismet & Greenland Oil Co.'s No. 1, SW cor. SE, Section 25-24-6, is dry at 2,761 feet. P. J. Reynolds and others' No. 1, SW cor. NE, Section 33-27-5, is dry at 3,213 feet. Richmond and others' No. 1, SE cor. SW, Section 8-27-6, had sand at 2,707-24 feet, and made 15 bbls. after being shot twice with five quarts. Phillips Petroleum Co.'s No. 1, NE cor. SW NW, Section 16-27-5, had sand at 3,130-39 feet and made 450 bbls. on the pump. Dixie Oil Co.'s No. 4, NW cor. SE SW, Section 27-27-7, is dry and abandoned at 2,785 feet. No. 1, NW cor. SE SW, Section 34-27-7, is dry and abandoned at 3,239 feet. Phillips Petroleum Co.'s No. 1, SE cor. SE, Section 17-28-6, had sand at 3,123-43 feet and is estimated at 20 bbls.

New Work

Producers & Refiners Corp. has spudded No. 1-A, NE cor. NW NE, Section 7-29-4. Allison & Fitzwilliams have a rig up for No. 3 Kramer, SW cor. SE NW, Section 3-28-6. Tom Johnson has a rig on the ground for No. 2 Blackman, NW cor. NE SW, Section 3-28-6.

Reno County

Gano & Hufflin have a dry hole at 3,635 feet in No. 1, NW cor. SE NW, Section 28-25-6w.

Lyon County

Sheedy and others' No. 8, NE cor. NW SW, Section 31-21-10, had sand at 2,187-2,222 feet and made 100 bbls. after a shot of 160 quarts. No. 1, NE cor. SW, Section 19-21-10, is dry and abandoned at 2,350 feet. Sinclair Oil & Gas Co. and others' No. 1, SE cor. NE SW, Section 7-20-11, is dry at 2,160 feet.

New Work

Swartz and others are drilling at 650 feet in No. 1, SE cor. SW, Section 29-21-12. Transcontinental Oil Co. is drilling at 750 feet in No. 7, SW cor. NE NW, Section 31-21-10. No. 5, NE cor. SE NW, Section 31-21-10, is spudded Sheedy and others have the rig up for No. 13 Atyeo, NE cor. SW SW, Section 31-21-10, and also for No. 12 Atyeo, SE cor. NW SW, Section 31-21-10.

Osage County

Haslett & Davis have a dry hole at 1,422 feet in No. 1, NW cor. NW, Section 3-17-17.

Markham & Horrigan have a dry hole at 2,585 feet in No. 1, NW cor. SE, Section 27-18-11. O. W. Culp's No. 1, NW cor. SW, Section 5-19-11, is dry and abandoned at 2,712 feet.

Marion County

Sheedy and the Empire Gas & Fuel Co. have a rig up for No. 6 Allison, SW cor. SE, Section 13-21-4. Sheedy and others have a rig up for No. 3 Jones, SE cor. NE NW, Section 24-21-4. Sandy Holl and others have spudded No. 1 Osgood, SW cor. SE SE, Section 31-21-5.

Completion

Prairie Oil & Gas Co.'s No. 17, CEL SE SW, Section 17-21-5, is dry and abandoned at 3,000 feet.

CALIFORNIA MARKET COMPETITION GROWS

LOS ANGELES, Calif., July 9.—With the summer demand for gasoline coming into full swing the competition among service stations is even more severe for this increased business. More and more, independent stations are selling so-called bootleg gasoline at reduced rates and are making other inducements such as a quart of oil with every five gallons of gasoline, etc., to improve their gasoline sales. This situation, of course, exists principally in and around Los Angeles. By these price cutting methods, however, independent stations and the smaller refiners of the gasolines that such stations sell have made serious inroads into the increased business which the larger companies usually enjoy at this time of year.

For this reason, some marketers are looking forward to a reduction in gasoline prices of from 2 to even 3 cents per gallon. A cut of this sort would only be justified at this time from the point of view of meeting competitive conditions. So far as supply and demand and the condition of gasoline stocks go, such a price reduction would not now be justified. Whether or not prices actually will be reduced is problematical. Conditions during the next two or three weeks as to just how serious bootleg gasoline is cutting into the larger companies' sales will probably determine what course will be taken.

Natural gasoline continues strong. Contract sales are being negotiated at from 15½ to 16 cents per gallon. Spot sales are being made in some cases at as high as 16½ cents a gallon.

The application for a reduction in freight rates on natural gasoline from the Mid-Continent to California, which is up for decision at the present time, has been felt somewhat by the natural gasoline market. At least one of the larger companies is not buying any of this product except where it is absolutely necessary, delaying contracting in all cases possible until this matter of freight rates is finally settled. This policy, of course, is adopted because of the fact that if freight rates are reduced, the price of natural gasoline will of necessity be reduced also. Other big buyers are doubtless governed to a certain extent in their purchases of natural gasoline by the possibility of a freight reduction from Mid-Continent to California.

On the other hand, natural gasoline plants are still apparently in demand by the larger companies. It is reported on quite reliable authority that one of the big refining and marketing companies is at present negotiating for the taking over of several small natural gasoline plants. Natural gasoline is now such a valuable and important commodity to the big companies in the manufacture of their finished motor gasoline, that these companies are finding it more and more desirable absolutely to control as large a portion of this product as possible.

SHREVEPORT MARKETS STRONGER DURING WEEK

SHREVEPORT, La., July 10.—All products save kerosene in the Shreveport refined market territory strengthened during the past week and refiners found a steady market. U. S. Motor grade gasoline steadied at the first of the week and its price held good throughout the seven-day period. None of the sales was of a sensational nature but refiners found a good spot business.

Natural gasoline strengthened the first of the week and softened a few days later and then came back strong following the course of U. S. Motor gasoline. Kerosene is still weak but refiners are optimistic concerning its future and look for the product to strengthen a little.

Gas oil is firm. A good quantity of that product was shipped from this territory during the week for export. Distillate is strong. The fuel oil price structure was a little shaky during the week.

RUSSIAN PRODUCTION

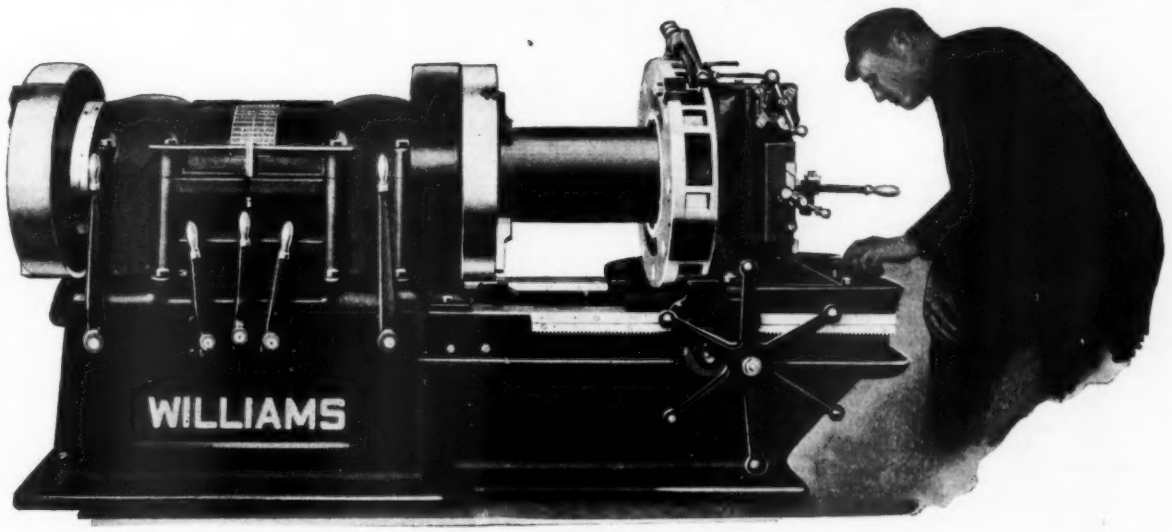
WASHINGTON, D. C., July 12.—Oil production in the Soviet Union for May broke all monthly records for post-war production, with an output of 721,796 metric tons, according to figures of the Russian Information Bureau. The month's output compares with 661,008 tons in April, an increase of 9.2 per cent, and 589,961 tons in May, 1925, an increase of 22 per cent.

The number of wells in process of drilling and deepening during the month was 436, as compared with 426 in April. Drillings were 25,310 meters, as compared with 25,132 meters in April. Despite the increased output, the number of workers in the fields at the end of May was only 37,019, as compared with 37,363 at the end of April.

BUYS SHREVEPORT STATIONS

SHREVEPORT, La., July 12.— The Louisiana Oil Refining Corp. has purchased the three service stations owned by the C. & G. Oil and Gas Co. at Shreveport. These will make a total of 28 stations operated by the company in the main part of Shreveport.

You move a little lever with one hand—and your 12″ RAPIDUCTION starts threading!



The positive-feed lead screw makes it unnecessary to *wrestle* with a die-head.

It takes a man who has operated all kinds of pipe threading machines to appreciate the *full* worth of the RAPIDUCTION.

Of course, anybody who knows the value of time-saving and labor-saving can quickly see that here is a power pipe threader of extraordinary merit—

But, it's the experienced operator who fully realizes everything that the features of the RAPIDUCTION mean—and assure.

A set of small, inexpensive chaser bits of the best high speed steel in the RAPIDUCTION dies, weighs only 2 pounds, ten ounces as compared to 149 pounds for old time dies. No change of die head is necessary to cut the full range of the machine—3½″ to 12″.

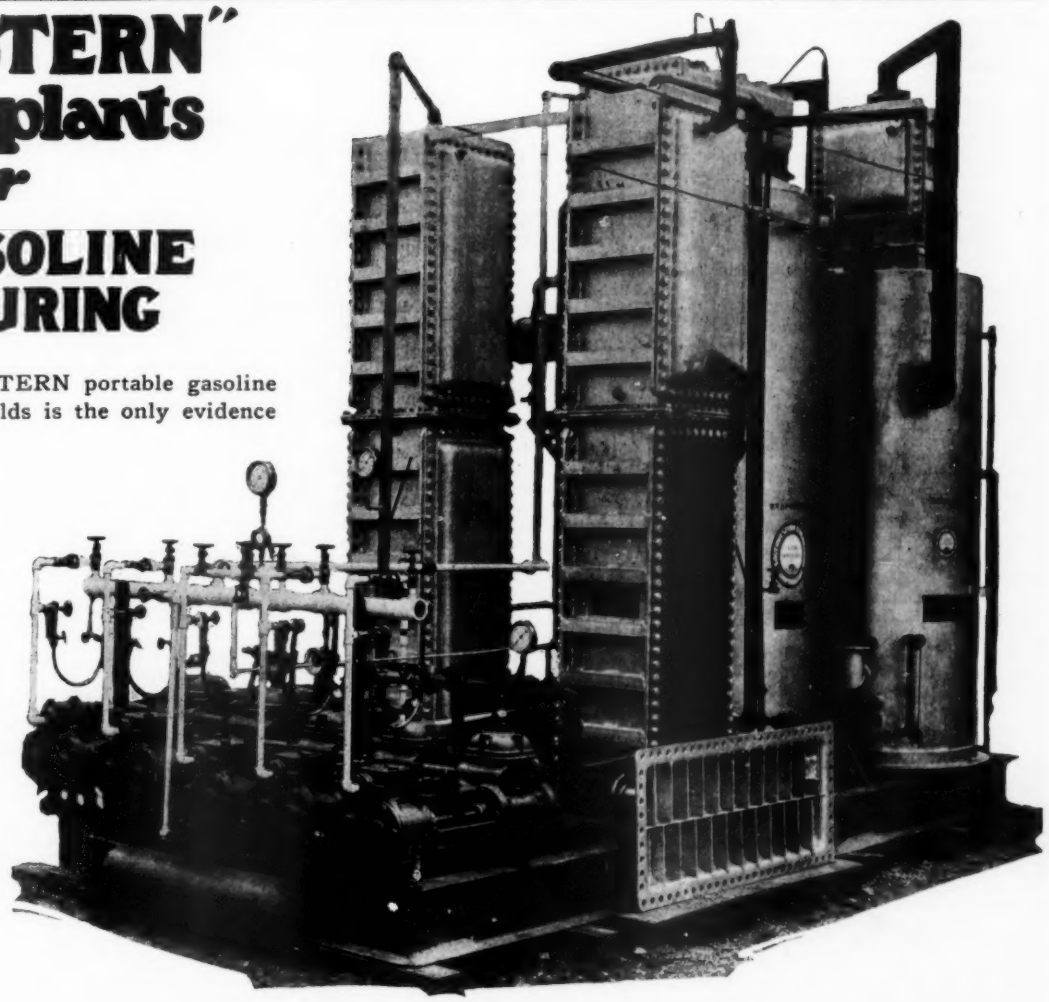
The large spindle bearings of the RAPIDUCTION are cast iron, self oiled and *always* trouble-proof without regard to the years of service. A half gallon of oil lasts a year.

The labor-saving lead screw—the compactness of the RAPIDUCTION—fool-proof moving parts—the splendid adaptability of the RAPIDUCTION for bucking (running a pipe into a coupling)—all these are reasons why the RAPIDUCTION is ready to offer you the same increased output and lower operating costs that it is giving others every day.

Send for the 12-inch RAPIDUCTION bulletin.

Williams Tool Corporation
Erie, Pa.

"SOUTHWESTERN" absorption plants *for your* NATURAL GASOLINE MANUFACTURING



The increasing number of SOUTHWESTERN portable gasoline absorption plants operating in the oil fields is the only evidence needed to convince you of the real worth of these plants.

Consult with Southwestern also about your refinery apparatus. Built for efficiency, economy and long life, it will pay in dollars and cents as well as in satisfaction.

Condensers, Heat Exchangers, Preheaters, Absorption Towers, Evaporators, Dephlegmators, Collins Water Tube Boilers, Oil and Gas Coolers, Separators, Rectifiers.

Catalogs will be sent on request.

Southwestern Engineering Corporation
1221 HOLLINGSWORTH BUILDING
Los Angeles, California

837 Mayo Building
TULSA, OKLAHOMA

Factory: Culver City, Calif.
Branch Factory: Tulsa, Okla.

OKLAHOMA FIELDS

(Continued from Page 43)

Selby's No. 6, SW cor. NE SE, Section 21-15-14, is dry at 2,191 feet. Aggas and others' No. 5, NW cor. NE NE, Section 16-14-15 is good for 15 bbls. from sand at 1,033-41 feet after a shot of 40 quarts. F. D. Misener's No. 9, SW cor. SW, Section 16-14-14, is dry at 1,730 feet. Joe Gardner's No. 2, SE cor. SE, Section 32-14-14, is making 20 bbls. of oil and 3,000,000 feet of gas from sand at 1,650-61 feet.

New Work in Okmulgee

R. L. Slater has spudded and shut down in No. 1, CWL NE NE, Section 19-15-12, Sherry and the Carter Oil Co., spudded No. 5 Grayson, SW cor. NE, Section 23-14-11, Speary & Mills, spudded No. 4, NW cor. SW SW, Section 7-14-13. W. A. George spudded No. 13, NW cor. SW NE, Section 9-14-14. Jim Wallace, drilling at 760 feet in No. 4, NE cor. NW NE, Section 14-14-14. J. G. Haas has spudded No. 14 Colbert, SW cor. SW NW, Section 15-14-14. Clarion Oil Co. has spudded No. 10 Wright, NE cor. SW SW, Section 22-14-14. Ral County Oil Co. is drilling at 1,150 feet in No. 7 Webster, CWL NE NE, Section 33-12-12. Cal Cul Oil Co. is cleaning out to drill deeper in No. 8 Doyle, NW cor. SE SW, Section 15-13-14. L. C. Wheeler and others have a rig and tools in for No. 2 Brown, NE Cor. SE SW, Section 1-11-13.

New Work in Osage

Walter Iraman and others are shut down at 1,500 feet in No. 1 Dougherty, NE cor. NW, Section 24-22-12, Osage County. J. R. Phillips is drilling at 450 feet in No. 3 Johnston, CNL SE SE SW, Section 24-22-12. Smith & Jones are drilling at 1,325 feet in No. 1, SE cor. NE SE, Section 36-21-12. Tidal Oil Co. is drilling at 560 feet in No. 4A, SW cor. NE SW, Section 31-21-13. No. 4, CNL SE SW, Section 31-21-13, had sand at 1,148-98 feet and made 5 bbls. after a shot of 35 quarts.

Pawnee County

In Pawnee County the Magnolia Petroleum Co. has a dry hole at 4,050 feet in No. 1, SW cor. SW, Section 13-23-4. Same company's No. 1, NW cor. SE, Section 4-23-5 is dry and abandoned at 4,010 feet.

Devonian Oil Co.'s No. 2, SW cor. NE SE, Section 35-22-6 is drilling at 450 feet. No. 2, SW cor. SE NW, Section 35-22-6 is spudded. No. 1, SW cor. NE, Section 35-22-6 is drilling at 950 feet.

Minnehoma Oil Co.'s No. 5, SW cor. SE SW, Section 13-21-7, had sand at 2,682-98 feet and made 15 bbls. after a shot of 10 quarts. Turner and others' No. 1, SW cor. SW, Section 23-21-7, is abandoned at 3,106 feet. Minnehoma Oil Co.'s No. 7, NE cor. NW NW, Section 24-21-7, had sand at 2,552-58 feet and made 75 bbls. after a shot of 15 quarts. J. B. Grieves and others' No. 3, CSL SE NW, Section 31-21-8, had sand at 2,599-2,607 feet and is estimated at 10 bbls. Schauble & Breslin's No. 1-A, NW cor. SW NE, Section 6-20-8, had sand at 2,505-2,614 feet and made 175 bbls. J. H. Markham, Jr.'s, No. 1, NE cor. NE, Section 16-20-9, is dry at 2,803 feet. C. E. Suppes' No. 1, NW cor. NE NW, Section 23-20-9, is dry at 2,600 feet.

Payne County Completions

Prairie Oil & Gas Co.'s No 2-A, SE cor. SW, Section 7-18-5, had sand at 3,038-41 feet with 500 feet of oil in the hole. A 5-quart squid went off in the casing and a fishing job has resulted. A. A. Bailey and others' No. 1, NE cor. SW, Section 11-19-6, is dry at 3,402 feet. Superior Oil Co.'s No. 1, SE cor. SW SE, Section 31-18-4, had sand at 3,564-3,657 feet with 16,000,000 feet of gas which will be shut in and completed.

New England Oil & Pipe Line Co.'s No. 3, CEL NE NE NW, Section 26-18-4, is drilling at 500 feet. Magnolia Petroleum Co. has built the rig for No. 1 Morris, SE cor. SW SW, Section 5-19-5. No. 1, NE cor. SW SW, Section 8-19-5, is drilling at 1,500 feet.

Shaffer Oil Co. has spudded and shut down No. 2, SW cor. NW SE, Section 15-20-6. Mid-Continent Petroleum Corp. is drilling at 650 feet in No. 21, NW cor. NE SW, Section 16-20-7.

Payne County Developments

Mulberry Oil Co.'s No. 1, SE cor. NE, Section 22-18-3, Payne County, is dry and abandoned at 4,353 feet. Deep Rock Oil Co.'s No. 3, SW cor. NW SW, Section 23-18-3, had sand at 4,290-4,301 feet and made 130 bbls. naturally. No. 5, NW cor. SW, Section 23-18-3, had sand at 4,311-16 feet and made 250 bbls. Pure Oil Co.'s No. 2, SW cor. SE NW, Section 23-18-3, is good for 175 bbls. naturally from sand at 4,296-4,301 feet. Shaffer Oil Co.'s No. 5, SE cor. NW SE, Section 23-18-3, is dry and abandoned at 4,504 feet. No. 3, SE cor. SW, Section 23-18-3, had 32,000,000 feet of gas in sand at 4,148-4,236 feet. No. 4, SW cor. SE SW, Section 23-18-3, is drilling at 4,275 feet with 35,000,000 feet of gas found in sand at 4,151-4,270 feet. Empire Gas & Fuel Co.'s No. 3, NW cor. NW, Section 26-18-3, made 550 bbls. from sand at 4,318-26 feet.

Empire Gas & Fuel Co.'s No. 5 Kesser, SE cor NW NW, Section 26-18-3, is drilling at 550 feet. M. T. C. Oil Co. has built a rig for No. 5 Waltman, SE cor. NE NW, Section 26-18-3. Shaffer Oil Co. has the rig up for No. 1 Moorehead, NW cor. SW NE, Section 26-18-3.

Kay County Completions

Comar Oil Co.'s No. 1, NE cor. SW, Section 17-27-1w, Kay County, is dry at 3,640 feet. Prairie Oil & Gas Co.'s No. 7, NE cor. NW SE, Section 1-26-2w, had sand at 2,951-78 feet and made 75 bbls. Marland Oil Co.'s No. 1, NE cor. NW, Section 13-25-2w, is dry and abandoned at 2,642 feet. Carter Oil Co.'s No. 5, NE cor. NE, Section 21-25-2w, is flowing 40 bbls. after a shot of 40 quarts in sand at 2,576-96 feet.

Garfield Completions

Marland Oil Co. and Mid-Continent Petroleum Corp.'s No. 44, SW cor. SE, Section 13-22-3w, Garfield County, is dry at 4,486 feet. No. 47, NW cor. SE, Section 13-22-4w, is dry at 3,670 feet. No. 63, SE cor. NE SE, Section 13-22-4w, had sand at 3,026-36 feet and made 950 bbls. No. 65, SW cor. NE SE, Section 13-22-4w had sand 3,050-64 feet and made 75 bbls. on the swab from sand at 3,050-62 feet. No. 69, SE cor. NE SE, Section 13-22-4w(had sand at 3,025-35 feet and made 346 bbls. Sinclair Oil & Gas Co.'s No. 48, NW cor. SE NE, Section 13-22-4w, had sand at 3,092-3,107 feet and made 310 bbls. Roxana Petroleum Corp.'s No. 2, NW cor. SW NW, Section 18-22-3w, had sand at 3,591-3,617 feet and made 1,408 bbls. No. 3H, SE cor. SW SW, Section 18-22-3w, had sand at 3,580-3,610 feet and made 293 bbls. No. 5-T, NW. cor SW, Section 18-22-3w, had sand at 3,085-3,118 feet and made 270 bbls. Sinclair Oil & Gas Co.'s No. 30, SW cor. NW NW, Section 18-22-3w had sand at 3,562-3,693 feet, and made 800 bbls. No. 30, NW cor. NE NW, Section 19-22-3w, had sand at 3,031-59 feet and made 1,800 bbls.

CREEK COUNTY COMPLETIONS

Bristow District, Creek County

Prairie Oil & Gas Co.'s No. 2, NW cor. NE NE, Section 1-14-7, had sand at 2,470-96 feet and made 25 bbls. after a shot of 50 quarts. C. G. Tibbens No. 2, SW cor. SE NE, Section 13-14-8, made 20 bbls. after a shot of 140 quarts in the sand 2,337-76 feet. Independent Oil & Gas Co.'s No. 1A, SW cor. NW, Section 29-14,10, is showing for 50 bbls. in sand at 2,840-45 feet and had 8,000,000 feet of gas in sand 2,810-17 feet. Savoy Oil Co.'s No. 2 NE cor. NW NW, Section 23-17-8, had sand at 2,304-35 feet and made 35 bbls. naturally. O. F. Chapman's No. 1, SW cor. NW, Section 26-17-8 had sand at 3,190-3,205 feet and swabbed 10 bbls. an hour. Peters Petroleum Co. has a gas well in No. 3, NE cor. SE, NE, Section 21-16-8. Sand was at 3,164-68 feet and the well is shut in, good for 6,500,000 feet of gas. Pioneer Petroleum Co.'s No. 5, NW cor. SW NE, Section 12-18-11, had sand at 1,638-75 feet, and made 35 bbls. an hour. Crude Oil Development Co.'s No. 6, CSE SW, Section 12-18-11, had sand at 1,638-75 feet and made 10 bbls. on the pump after a shot of 80 quarts. No. 2, NE cor. NW SW, Section 12-18-11, made 10 bbls. of oil and 30 bbls. of water after a shot of 140 quarts in sand at 1,390-1,410 feet. Sunray Oil Co. and Munn Bros. No. 6, center south half SE NW, Section 6-18-12, had sand at 1,969-80 feet and made 30 bbls. after a shot of 40 quarts. Mike Mead has moved the rig out and abandoned the location for No. 2, NW cor. SW, Section 16-17-11. Kinnear and others have a dry hole at 2,670 feet in No. 3, CWL SE NW, Section 31-16-11.

New Work

Lima Oil Co.'s No. 1, SE cor. SW SW, Section 19-15-8, had sand at 3,298-3,310 feet with 21,000,000 feet of gas.

New Work in Creek County

Haskell Oil Co. has the rig on the ground for No. 6, SE cor. SW NW, Section 12-14-8. Shaffer Oil & Refining Co. has the rig on the ground for No. 1 Coker, NE cor. NW NW, Section 17-14-8. Johnson & Ashe have rigged up No. 1 Tiger, SE cor. SW, Section 9-14-10. Atlantic Oil Producing Co. has a rig up for No. 2 Bear, NE cor. NW, Section 16-14-10. M. P. Evans is drilling at 750 feet in No. 1, SE cor. SW, Section 25-14-10. Empire Gas & Fuel Co. has spudded No. 2, NE cor. NW SW, Section 31-14-10. Mid-Continent Petroleum Corp. has built the rig for No. 6 Mitchell, SE cor. NW, Section 32-14-10. Slick has the rig up for No. 1 Fulsom, NW cor. NE SW, Section 32-14-10. Alvord & West have spudded No. 1, SE cor. SW SW, Section 14-17-8. Transcontinental Oil Co. has the rig on the ground for No. 2 Mitchell, CEL NE SW, Section 22-17-8. Interocean Oil Co. and others are drilling at 650 feet in No. 5, CWL NE NE, Section 27-17-8. The Texas Company has a rig on the ground for No. 3 Bruner, CEL NW NE, Section 27-17-8. Margay Oil Co. has a rig up for No. 3A Yardy, SE cor. NE, Section 9-16-8.

Prairie Oil & Gas Co. is drilling at 450 feet in No. 3, SW cor. SE SW, Section 3-17-9. A machine is rigged up for No. 4 Hope, NW cor. SE SW, Section 3-17-9. Perry & Stiver are rigged up in No. 1 Hay, SW cor. NW, Section 10-17-10. Mid-Continent Petroleum Corp. has built the rig for No. 3 Dawson, CEL NW SW, Section 24-17-10. J. H. Wright is drilling at 950 feet in No. 11, CNL NW SE, Section 24-17-10. O'Rourke Oil Co. is fishing at 3,060 feet in No. 2 Vaughn, CNL NE SW, Section 33-16-9. Riverland Oil Co. has spudded No. 3, CEL W half NW, Section 1-18-11. Devonian Oil Co. spudded No. 2, CWL NE SE, Section 4-18-12. H. E. Henson spudded No. 2, NE cor. NW NE, Section 5-18-12. Day Bros. spudded No. 3A, SW cor. NW NE, Section 6-18-12. Sunray Oil Co., & Munn Bros. have a rig up and tools in for No. 7 Sango, SW cor. SE NW, Section 6-18-12; Regal Oil & Gas Co., rigging up No. 27 Bigpond, CNL SW, Section 6-18-12. O. M. Ireland, rig up for No. 8 Freeman, SE cor. SE, Section 8-17-11. Misener and others, spudded No. 1 Broddnax, NW cor. NW, Section 16-17-11. Sheridan and others, spudded No. 2, SE cor. SW SW, Section 34-16-11. Turner & Turner spudded No. 4, NW cor. SW SW, Section 9-16-12. C. G. Tibbens, drilling at 560 feet in No. 30, SE cor. SW NE, Section 30-15-9. Roland Oil Co., rig up for No. 1 Allen, NE cor. SW, Section 4-15-10. The Carter Oil Co. & Scruggs, rig in for No. 1 Grayson, SE cor. SE, Section 36-15-10.

Burlingame & Sharp s No. 3, SW. cor. NW, Section 13-19-8, had sand at 2,876-77 feet and made 60 bbls. naturally. It was shot with eight quarts and is showing for 140 bbls. Devonian Oil Co. has completed No. 3, SE cor. NE, Section 14-19-8, for 250 bbls. naturally in sand at 2,410-16 feet. Sand Springs Home's No. 25, C NW NW, Section 4-18-7, had sand at 2,570-2,607 feet and made 100 bbls. after a shot of 200 quarts. Magnolia Petroleum Co.'s No. 16, NW cor. SE SE, Section 6-18-7, had sand at 2,540-70 feet and made 40 bbls. naturally. Shaffer Oil & Refining Co.'s No. 7, CEL NE SW, Section 6-18-7, had sand at 2,420-80 feet and made 15 bbls. Riverside Oil Co.'s No. 1, SW cor. SE, Section 8-18-7, had sand at 2,425-45 feet and is showing for 45 bbls. Magnolia Petroleum Co.'s No. 8, CWL SW SE, Section 32-18-7, had sand at 2,694-2,737 feet and made 30 bbls. after a shot of 20 quarts. Roxana Petroleum Corp.'s No. 1, NW cor. SW NE, Section 18-19-9, had the Wilcox sand at 2,984-85 feet and made 270 bbls. the first nine hours.

IN TULSA COUNTY

Sand Springs District

Riverland Oil Co.'s No. 1A, NE cor. SE NW, Section 34-19-11, had the sand at 2,303-08 feet and made 800 bbls. the first 24 hours and is now making 140 bbls. daily. Sunray Oil & Gas Co.'s No. 2A, SE cor. SW SW, Section 31-19-12, was dry and abandoned at 1,390 feet. The rig is skidded for another hole. Peterson and others' No. 1, NW cor. SE NW, Section 24-18-13, Jenks district, is dry and abandoned at 1,609 feet. Straughan and others' No. 1, CWL SW SE, Section 18-18-14, Broken Arrow district, is dry and abandoned at 3,076 feet. Thomas Green and others' No. 2, NW cor. SW SE, Section 28-18-14, is dry and abandoned at 1,535 feet.

Linden and others' No. 1 Norter, SW cor. SW, Section 10-19-14, was drilling at 560 feet. E. A. Hawley has a machine on the ground for No. 1 Taylor, SE cor. NE, Section 1-17-13. Suppes and others have a machine in for No. 1A Ricketts, SW cor. NW, Section 5-17-13. Pettit and others are drilling at 1,295 feet in No. 3, CNL NE NW, Section 9-17-14. Jolly & Ogg have spudded No. 1A Harry, NW cor. SE SE, Section 5-16-13. Keener Oil & Gas Co. has spudded No. 6 Sharp, SE cor. NW, Section 10-16-13. Elson and others have spudded No. 1A, NW cor. SE, Section 24-16-14.

Muskogee Developments

Crandall & Murta's No. 1, CNL NE NE, Section 9-15-15, Muskogee County, is drilling at 900 feet. W. R. Summerville has spudded No. 1, NE cor. NE, Section 17-16-17.

King and others No. 5, CNL NW SW, Section 14-15-15 is dry at 1,445 feet.

PENNSYLVANIA MARKET WITHSTANDS CRUDE CUT

OIL CITY, Pa., July 10.—The big feature of the oil situation in Pennsylvania during the past week was the reduction in the quotations for the various grades of Pennsylvania crude oil. The refined market was weak throughout the week but the most important feature was that it showed little effect of the crude drop. Gasoline slipped some but was absolutely unaffected by the change in crude prices. Some of the refiners are now of the opinion that it has reached bottom unless there is a slashing of tankwagon prices. The weather has improved, tourist travel has started and consumption is increasing by leaps and bounds. The travel over the holiday was exceptionally big.

Kerosene continued to slide during the week. The demand now is small and there is good possibility of still further price reductions for this product.

Fuel oil is soft due partly to a cut in the amount being used in cracking processes. Cylinder stocks were weak, neutrals were in good demand but prices were affected by the crude reduction. Wax was strong.

OLNEY PLANT IMPROVEMENTS

The Olney Oil & Refining Co. has installed a modern continuous gasoline treating plant, according to Charles T. Wolverton, Jr., general manager. The treater can sweeten 125 barrels of gasoline an hour. The Olney plant has a capacity of 2,000 barrels of crude daily.

BROOKS ENGINEERING CORP.

Announcement is made that the Neches Supply & Equipment Co. of Beaumont, Tex., is to serve as the representative of the Brooks Engineering Corp. of Los Angeles. The Beaumont concern is a well known distributor of oil field supplies in the Gulf Coast. The offices of the Brooks Engineering Co. in Tulsa have been moved to 837 Mayo Building, according to President Brooks.

The ELLIOTT-ALCO CORE DRILL

Basic Value of well coring Established

The basic value of oil well coring, as demonstrated by results, has become so well established among big, successful operators, that it is now routine work in all their drilling.

This basic value, however, has been achieved only by successive quality cores—"Elliott-Alco" cores—not by slip-shod, haphazard, indifferent coring. Operators have experienced the fact that guidance from such cores is worse than none at all. It has proved the wisdom of the "Elliott" contention from the inception of coring that 100% unbroken recovery, as near as that is mechanically and humanly possible, is essential.

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BRANCHES: 3210 Harrisburg Blvd., Houston, Texas
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Gasoline Treating Costs Reduced 20% to 80%

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ATTENTION, LEASE BUYERS

I am about to spud a well 40 miles west of Miami, with money up in bank to pay for 4,000 feet. Can deliver 560, possibly 640, acres seven-eighths commercial lease scattered, 1½ to 2 miles of this well. Expect require four months drill. Will furnish accurate information as well goes down. What do you offer? Neil Scroggins, P. O. Box 2788, Miami, Fla.

PANHANDLE OIL LEASES

We have for sale five-year commercial leases in Hutchinson, Moore, Hartley, Dallas, Sherman, Gray and Hemphill Counties ranging in price from $2.50 to $100 per acre. Write or wire, Brunsvold & McCracken, ground floor, Amarillo Bldg., Amarillo, Tex.

CAN FURNISH about 3,000 acres state leases in almost proven territory, located east of Artesia Field, Eddy and Lea Counties, Maljamar territory. I am too far away to look after these leases, therefore, all for sale. Particulars, J. B. Holt, El Dorado, Ark.

WINKLER COUNTY, TEXAS
LEASES FOR SALE OR DRILL

I offer for sale 10-acre lease, northwest of Westbrook, well now drilling around 1,900 feet. Lease is near Magnolia, Cranfill Brothers and Sun Oil companies' holdings.

Also 20 acres southeast of Westbrook, well near Sun Oil Co., Marland Oil & Refining Co., Independent Oil & Gas Co. and jam up against the Prairie Oil & Gas Co.'s holdings.

15 new locations have been made near these leases. Will sell outright reasonable for cash or will submit the following proposition. One-eighth of oil to me one-eighth to land-owner and three-fourths to party drilling, no bonus required. Write Albert McCollum, Box 415, Atkins, Ark.

SOUTHEASTERN NEW MEXICO

10,000 acres state leases in ten townships of southern Lea County. Also drilling blocks in Chaves and Eddy Counties. Address W. A. Nicholas, Roswell, N. Mex.

90-ACRE LEASE in Woodson County, Kansas. Equipment and pipeline connection. Production guaranteed. Price reasonable. Houston, Transportation Notional Bank, Minneapolis.

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Underwriter Brainard Ranch oil and gas leases, 25,000 acres in Hutchinson County. Hutchinson County is the major producing area. New 5-year leases from 20 acres to 160 acres. Bought right can sell at reasonable price per acre. Write for map and prices. I have handled, as underwriter, over 60,000 acres in the field on which over 80 wells are now drilling or producing. Ed R. Mayer, Amarillo Hotel Bldg., P. O. Box 1186, Amarillo, Tex.

YOU have your organization and can give good service. Does the Billion Dollar Petroleum Industry know it? Have you made it easy for oil men to order from you? If not, the surest and best way to promote the merits of your company is to use The Oil and Gas Journal—the oldest and best petroleum publication in the world.

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LEASES—PRODUCTION

SOUTHEAST NEW MEXICO

Can furnish practically proven leases in Artesia Field, Eddy County. Also other tracts in Eddy, Chaves and Lea Counties. Particulars on request.

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HAVE BUYERS for flush or settled production in Oklahoma and North Texas. Vern R. Hartman, P. O. Box 442, Dallas, Tex.

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WRITE for my state of Texas oil map free. Oil leases exclusively. Reference Mercantile Agencies.

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WANTED—Producing royalties Oklahoma and Kansas. Give full details. P. O. Box 502, Independence, Kans.

WANTED producing royalty, Oklahoma, Arkansas, Texas, Kansas. Give all details. L. R. Kershaw, Muskogee, Oklahoma.

WANT producing royalties in Arkansas and Louisiana. Give all details. James H. Dugan, Randolph Hotel, El Dorado, Ark.

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5,000 ft. 5 3/16", 20-lb. per foot
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2,600 ft. 10", 40-lb. and 45-lb. per ft.
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1,000 ft. 15½", 70-lb. per ft.

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5,500 ft. 4", 11-lb. per ft.
23,700 ft. 6", 19.45-lb. per ft.
25,000 ft. 8", 29.35-lb. per ft.
10,000 ft 4" Standard black.

Drilling Rig
1 No. 25 Star, portable, complete with firebox boiler.

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THE DENVER METAL AND MACHINERY CO.,
Denver, Colorado.

FOR SALE—Friction pulling machine. Three Troy trailers. Two pressure tanks, 3x22 feet. Box 327 Dewey, Okla.

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Second-hand pressure stills suitable for storage purposes. Length 30 feet, diameter 10 feet; weight about 27,000 pounds; capacity 18,600 gallons. Steel riveted and welded. Manhole-top, 20 inches; end 24 inches, bolted manhole cover. Price $400 each, f.o.b. cars, Neodesha, Kans.
THE STANDARD OIL CO. (Kansas)
Phone 236 Neodesha, Kans.

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25-h.p. enclosed type Bessemer
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Both in perfect condition, used less than two years, complete with clutch pulley, electric ignition, etc. Also 35-h.p. Vertical Westinghouse two cylinder, direct connected to generator.
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FOR SALE—Two No. 19 and 1 No. 25 Armstrong and 1 No. 38 Star drilling machines with complete sets of tools. Rigs are in good running condition. W. P. Harley, Bowling Green, Ky.

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Worthy of your confidence. General machine work. 1416 Walnut, Kansas City, Mo. Phone Harrison 7660.

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35,000 feet 2½-inch
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75,000 feet 4 -inch
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Two miles 60-pound first-quality relaying rails.

For immediate shipment from our Texas yards.
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1-in. to 12in. Also complete drilling rigs. We are also in the market for pipe of any size or quantity.
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⅜x ¾ in., ⅜x⅜ in., ⅜x1 in.
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Factory Prices
Write or wire for quotations.

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EQUIPMENT WANTED

WANTED

Used Diesel engines, 10 to 250 H.P., either belted or direct connected type. Prices must be attractive.

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POSITION WANTED

STENOGRAPHER with production and land department experience desires position August 1. Phone 8216. 626 Mayo Bldg., Tulsa, Okla.

MECHANICAL ENGINEER, qualified by 12 years steam power and cracking plant experience, desires refinery connection in engineering and operating capacity. Particularly familiar with the development, construction, and operation of the Dubbs Proces in detail. Box B-390, The Oil and Gas Journal, Tulsa, Okla.

FIRST CLASS MACHINIST, thoroughly experienced in production work of tools and parts and erecting heavy machinery, technical, mechanical and electrical training; 37 years of age; German descent; want opportunity for advancement. Write for photo and information. Mr. Ruddies, 747 East 136th St., New York, N. Y.

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PRODUCTION MAN with 18 years' experience, wishing position with reliable company. Excellent references; will go anywhere; married. Box B-395, The Oil and Gas Journal, Tulsa, Okla.

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Technical graduate with 20 years' exceptionally broad experience including oil field operations. Banking and professional references. Fluent Spanish. Open for foreign engagement only. Box B-370, The Oil and Gas Journal, Tulsa, Okla.

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TECHNICALLY trained man with extensive modern refinery experience desires to make connection with a progressive organization along the line of process development. Will go anywhere. Box B-340, The Oil and Gas Journal, Tulsa, Okla.

CHEM. ENG. graduate of large eastern university, with extensive laboratory and plant experience in a complete oil refinery, desires to make connection with a progressive company. Location immaterial. Box B-341, The Oil and Gas Journal, Tulsa, Okla.

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We are prepared to furnish from stock standard forms of gas meter Consumers' Ledgers. Sample forms and quotations on request. First class material and workmanship.
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Oil City, Pa.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township books, well records, etc. Request on your letterhead gets free catalog. Olds Press, 215 East Third St., Tulsa, Okla.

35 CENTS a line first insertion; 25c a line each additional insertion. Cash in advance.

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HELP WANTED

WANTED—Oil country blacksmith with experience making cable tool drilling bits. Box B-391, The Oil and Gas Journal, Tulsa, Okla.

DRAFTSMEN—Capable of handling design as well as detail work. Should be familiar with refinery and general oil field layout and construction. Experience and sample of work to accompany application. Chief Engineer, Empire Companies, Bartlesville, Okla.

WANTED

HOW would some one like to drill test near Sunny Side, Idaho? This spot looks good. Wm. Burger, 4761 Milentz Ave., St. Louis, Mo.

WANT PARTY to finance completion of deep test which drilling contractor has been obliged to take over through default of owners. Located in very heart of prominent Arkansas-Louisiana field where big production just been discovered from several lower sands. Lease includes production from five small first sand wells. Hole down 2,000 feet, perfect condition, 12-inch casing. Lookers save time, as this takes real money and reasonably quick action. Box B-393, The Oil and Gas Journal. Tulsa. Okla.

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CAPITAL NEEDED

Capital needed for developing several hundred acres producing acreage in structure 30 miles from Casper and 2 miles from pipeline to refinery. Bureau of Mines report shows 200 bbls. paraffin base oil producer at 2,300 feet. No bonus; reasonable royalty. A big money maker for small group. Wire or write K. S. Albert, Casper, Wyo.

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During the year thousands of men use the Classified Wants Section to good advantage.

They use it to buy or sell leases, royalties, production, equipment or service of all kinds.

You can do the same thing.

Mail your advertisement now and it will be placed in next week's issue where more than 25,000 readers will have an opportunity to bid on your offering.

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BROKERS to underwrite meritorious stock issue on producing oil properties. Justify payments, large dividends. By appraisal, assets $239,000, competent engineers. Sales used for expansion purposes. Box B-354, The Oil and Gas Journal. Tulsa, Okla.

WANT TO BUY—Fifteen to 25 bbls. oil production in shallow field with some undeveloped acreage. Write box 562, Parkersburg, W. Va.

WANTED—Several first-class drilling block by reliable parties; in Oklahoma, Texas or Kansas, must have good geology and stand close examination. Send full details together with maps and geology in first letter. Address Box 1327, Bartlesville, Okla.

FOR SALE—MAPS

SOUTHEASTERN NEW MEXICO MAPS
Geological, Ownership and Sectional
Complete and Authentic
Write for folder.
M. H. HUNTER CO.
Roswell, New Mexico

Take Advantage of It!

The 1926 Semi-Annual Number of The Oil and Gas Journal, containing a wealth of useful information, statistics, analyses, graphs, pictures, tables, photographs, drawings, maps, covering activities during the first half of this year will be published July 29, 1926.

Thousands of Producers, Refiners, Natural Gasoline Manufacturers, Marketers, Exporters and Executives will use it for reference throughout the year.

Advertisements in the Semi-Annual Number will be read, time and time again. Take advantage of it.

Buy or sell, oil leases, royalties, production, used equipment, or service through the Classified Wants Section. It doesn't cost much!

Mail your ad now so that it will be in the Semi-Annual Number, where it will be working for you the rest of this year.

The OIL and GAS JOURNAL
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PATENT-SENSE — Valuable book (free) for inventors seeking largest deserved profits. References include prominent oil men. Write Lacey & Lacey, 718 F. St., Washington, D. C. Established 1869.

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LOCATED among virgin pine on shore line of beautiful Trout Lake, for over thirty years a discriminating patronage have selected this picturesque lodge with its rustic log cabins as a place for rest, recreation, homelike comforts and food.

Excellent musky, pike and bass fishing, bathing, riding, tennis and golf.

Modern accommodations. Gentiles. Overnight from Chicago. By auto, 15 hours on good roads. Write for booklet. The Manitowish Lodge, P. O. Woodruff, Wis.

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FINANCING SERVICE
Results sure, swift, economical. Employ the One Great Plan—the plan that gets money. Avoid abortive "mail order" and "phony" broker schemes. Describe proposition. Hansel Financing Specialists, 212-GE Earlham St., Pittsburgh, Pa.

THE SCHEME of life is so arranged that some men have capital and need equipment, while others have salable articles and need cash. For these men, The Oil and Gas Journal Classified Section provides an excellent opportunity to broadcast their wants.

BUSINESS CAPITAL
An experienced dependable broker with following is prepared to give personal attention to the financing of a worthwhile proposition. Address B. W., 810 Broad St., Newark, N. J.

DO YOU NEED MONEY for organizing or financing oil or mining deals? Write 117 E. 10th. Oklahoma City, Okla.

BUSINESS OPPORTUNITY

MINES FOR SALE—If you are looking for some valuable mining property, write me. Etienne A. Ritter, 408-9 Empire Building, Denver, Colo.

BUSINESS OPPORTUNITY

FOR SALE
160-acre farm, on Kansas City-Tulsa paved highway, close to Tulsa. Good productive soil. New dairy barn with latest improved equipment and with water system in barn. Good well, gasoline pump and new water tower. All buildings and fences well maintained and in good first class condition, and all equipment is new. Plenty of shade around building. Nice 4-room house. Would also sell 7 head registered Jersey cows, 5 of them recently imported, or would sell farm separately. Terms to responsible party. Address 1532 South Madison Avenue, or telephone 2,4229, Tulsa, Okla.

TWO FEE ranches. M. F. Beaumont, Hartley, Tex.

EVERY MAN his own geologist by my Geo-Physical method. Particulars 969-B Union Trust Bldg., Pittsburgh, Pa.

SALES ORGANIZATION, with offices and representatives covering rotary fields in Oklahoma, Texas, Louisiana and Arkansas, wants to represent reputable manufacturers of rotary drilling and fishing equipment. General Oil Tool Co., 406 West First St., Tulsa.

DRILLING CONTRACT

Offer drilling contract on Dome 25 miles U. P. R. R. in Wyoming. Depth 1,500 feet; 8,800 acres. No bonus; 12½ per cent royalty. Map furnished on request. Also offer royalty interest in 3 structures in Wyoming being drilled by Standard subsidiaries.
K. S. ALBERT, CASPER, WYOMING

BROKERS, ATTENTION
Organize your own company.
Have 40-acre tract between production in Cross Cut Field. Will drill and equip. Bottom hole money. F. J. Smith, Box 84, Putnam, Tex.

SEMINOLE COUNTY—Wish to make a deal with a contractor or driller who owns a rotary outfit to drill a well on acreage 3½ miles from production in two opposite directions. Good geology. Would like to deal partly on interest basis. L. C., Box 236, Maud, Okla.

WABASH DRILLING CO., solicits your work. We maintain 10 strings of cable tools and will furnish estimates on work in any cable tool country. Bring on your wildcats. Wabash Drilling Co., office, Lawrenceville, Ill.

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THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

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Sell stock, units or leases quickly, economically. Square shooters only need give details; 25 years' experience behind plan. Northcliff, 28 W. 44th, St., New York, N. Y.

XUM

Chicago Demand Good; Buyers Slow

Much Speculation on Stocks in Dealers' Hands and in Transit as Factor in the Market. Price Holding

By J. B. Waldo

CHICAGO, July 10.—The demand for gasoline during the week was good, but few sellers did all the business they expected to do and which they felt must follow such a large consumption was had generally over the Fourth. This has started a lot more discussion regarding the stocks in jobbers' hands or the so-called invisible supply. This is not the first time that the calculations of a major industry have been unsettled by an invisible supply and it will not be the last. If it were possible to gauge with any degree of accuracy the quantity of gasoline that has been shipped from the refineries but has not been purchased by the public it would add the missing link to the available statistical information regarding the gasoline situation.

It has been suggested by some of the oil men during the week that an average day's shipment of gasoline from the refineries supplying this territory might be 1,000 cars and that the average time that would elapse between the loading of the cars at the refinery and its unloading at its destination might be five days. If these figures are approximately correct, there would be at all times under average conditions 5,000 cars of gasoline that had left the refineries and would not be included in any report made by the Bureau of Mines as stocks on hand. Then there is the quantity of gasoline in the jobbers' tanks. From some estimates of shipments and stocks the thought was reached by some well posted oil men here that the average supply of gasoline in the tanks of the jobbers over the country should be equal to a month's consumption and in support of this statement there were instanced reports received from individual jobbers in different parts of the territory as well as a review recently made in the State of Nebraska, although this review was not made to determine this quantity of gasoline in storage. The evidence at hand strongly pointed to the facts that during the period of active gasoline demand there are at least 5,000 cars of gasoline in transit which were not included in the stocks of either jobber or refiner and that the average supply of gasoline held by the jobbers would be very likely to equal a 30 days' supply.

Every jobber has some storage and during the past two or three years the tendency has been to add to the number of storage tanks. Then there is to be considered the vast, and many say wasteful, increase in the number of filling stations, all of which have a certain amount of tankage. These have to be filled and kept full and they make a material addition to the quantity of gasoline on hand for sale although they do not really increase the consumption, merely adding to the dead stock, so to speak. This tankage is frequently used for storage by the refiners who have their own distribution. If they have an excess of gasoline at the refinery or desire to accumulate a stock of gasoline the tanks of the bulk and service stations are filled to the limit. Now the point of all this is that at times jobbers seem to have a concerted idea that the time is at hand to fill up their storage or to decrease the quantity in their tanks. When they are filling their tanks they draw on the refiners' supplies, not necessarily for immediate or even early consumption, and when they have the idea that it is desirable to hold back from buying some of the larger organizations can hold their purchases to almost normal quantities for quite a time and all for some period. This invisible supply is also added to in a way by the fact that while a few years ago such a thing as buying a load of gasoline from a competing oil jobber was unthought of, today it is the most common of things for an oil jobber to go to his competitors for a truck tank of gasoline to piece him along until his delayed shipment arrives, so that the entire supply of gasoline in a community tends to even itself and there is less of the condition where one jobber distributor has a good supply and his neighbor is all out. Independent jobbers frequently are able to secure temporary relief from their neighbors of the larger oil companies, the Standard agents as a rule being willing to oblige.

Record Consumption

There is no doubt remaining that the consumption of gasoline the territory over was the largest on record. The best idea of the consumption is gained by the cars ordered by the large oil companies with extensive systems of distributing stations as the managers of these stations pay no attention to the market, but simply order additional cars as the stocks drop to a level where the necessity of adding to them is indicated. Company after company reports that they received orders from their stations for more cars of gasoline than at any previous time in their records. This was not spot market business, but the spot business was large, although it did not really begin until Wednesday with most sellers. Since then there has been some decline in activity and most of this business was with the smaller oil companies who carry less oil in storage.

The consumption was so good that some refiners with local and nearby distribution have been ordering freely in this market from those who could make prompt deliveries, having the gasoline shipped to their own stations as they could not wait for deliveries from their own refineries. Marland has bought liberally and paid the market price, while the White Eagle and Skelly Oil have bought here as well as at Tulsa to supply their stations. The price situation has not shown the strength expected. Early in the week there was some selling at 10¼ cents, but this gasoline was quickly absorbed and at this writing about the only price is 11 cents strong, or as the representative of one of the large Mid-Continent refining organizations stated, "11 cents and no maybes." There is a good deal of talk right now of 11¼ cents this coming week, and if the demand holds at a good level, of 11½ cents. It was reported in this market on Friday that Skelly, White Eagle and Bolene refineries were asking 11¼ cents from the trade, but as the first two at least have been buyers of gasoline during the week, it is evident they have little if any gasoline to sell.

Marginal Contracts

Takings on marginal contracts are stated by some to be good and by others not so good. The larger jobbers are in many cases claiming when solicited for business to be supplied for the present or not ready to order yet. In some cases they replied that they looked for a decline in the tankwagon prices on Monday and to call them on Tuesday. At the Standard Oil Co., a prominent executive, when asked if there was any reason to expect a tankwagon decline, replied that it was most unlikely when they were doing the best business they had ever done. The decline in Pennsylvania crude was also urged as a reason for holding back present orders. The buyers of these organizations did not seem to be in a buying mood then, but at the close of the week there were a number of inquiries and some had apparently made up their minds that there was going to be no decline in the tankwagon scale at present, and that the price of Pennsylvania crude had really little to do with gasoline quotations out of Group 3. The market closed strong, with many planning to go to 11¼ cents promptly on Monday morning. Speaking of that Mid-Continent sales organization that has been broadcasting a price of 10¾ cents, one leading oil man stated the way he figured it was that if the jobber got the gasoline and the market went down there were plenty of reasons for rejecting the shipment, and if it went up why the jobber could use the oil, no matter if it did not pass the doctor or corrosion tests or fill the distillation specifications, but all the same the persistent offering of these lower than the market range of prices has a disturbing effect. The demand for the higher tests has dragged right through the week and quotations are practically unchanged, with abundant offerings. The excitement regarding the antiknock gasolines has completely died away. The Standard is pushing its ethyl gasoline and The Texas Company its "new and better gasoline," here through newspaper advertising and station cards, but the effect is practically nil with the jobbers at present. Natural gasoline is reported to be in some better demand and quotations show a little firmer tone, but the local sales are small. Some of the makers with local offices report they have good contracts with the refining organizations elsewhere, but there is very little demand in the local spot market.

Kerosene Demand Growing

There is a growing demand for kerosene and the market is firm at 5¾ cents, with some refiners asking 6 cents and a few sales at 5½ cents. The tendency is strongly to quote 5¾ cents as the market here at present. The spot demand is nothing like as rushing as it was some weeks ago, but there is a better business and a steady movement, with considerable export buying. The summer demand for kerosene is nothing like as large as the spring and fall demand, but it is noticeable, and this year is expected to come to a head between July 15 and 31. Then the consumption falls off with the ending of the small grain harvests to reach a final stage of activity for the year, with the fall plowing which may come with the close of the corn crop and last until the first hard frost. Last year it was brought to an early end by the October cold spell.

Distillate Prices

Every refiner, every marketer, is being pushed for something definite in the way of prices for distillates over the coming season. Distributors, local and in the country, are insisting that they be given some basis of price on which they can get out and make their contracts with their customers. Several refiners have stated that they have been waiting to see what the larger organizations such as the Standard, Sinclair and Roxana were going to offer but so far the only offering by any of these companies has been a contract agreeing to supply average requirements at the market price. Most of the buyers feel this is no contract at all and that it would put the distillate business on the same footing as the gasoline business as to prices and contracts. The distributors feel they must have some price to offer to their trade. They could go out today and name a price, but they stand the chance of losing both ways. If their price is too high as the season advances they lose their customers and if it is too low they lose money. Locally at least one organization, not well known nor of high standing, is offering to close contracts, but so far as has been reported by those with whom it has sought to do business its offerings have been confined to fuel oils and not the lighter distillates. The market is in such an anxious, even apprehensive, condition that the action of this one company is making much more talk than it would seem to merit. But distributors who are also anxious to know what their oil will cost them next

HEAVY CONSUMPTION STEADIES GASOLINE MARKET IN THE EAST

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church St., New York

NEW YORK, July 12.—Continued heavy consumption of gasoline in the East with favorable weather for motoring over the last couple of week ends has served to keep the market for domestic gasoline fairly steady in the face of generally high stocks and a manufacturing schedule that with unfavorable conditions would probably bear down the market.

Practically all companies report continued substantially increased sales over last year in the northern Atlantic states. There has been some shading in the tank-car gasoline market at New York Harbor refineries and the prevailing quotation stands at about 14½ cents as against 15 cents, with reports of some further concessions.

The reduction of 25 cents in the price of seven grades of Pennsylvania crude on July 8 tended further to weaken the refinery market for the principal products and as usual resulted in considerable speculation as to whether this indicated any immediate drop in Mid-Continent crude schedules.

The Pennsylvania cut is again attributable to local conditions as to takings of Pennsylvania refineries, also showing the situation of full storage on the part of the large purchasers. It is apparent that these refiners find it feasible to slow up purchases, this indicating some saturation in the eastern retail trade.

Kerosene and Fuel Oil

The kerosene situation remains unchanged, with the tendency toward declining pirces. The weakness was brought out in a decline in export prices.

Lubricating Oils

No outstanding feature is apparent in the lubricating oils except continued satisfactory demand for automobile oils.

Petrolatum prices are unchanged with demand dormant.

Export Market

The quietly weakening aspect of the export markets apparent during the last few weeks took definite form in the reduction of prices for export gasoline and kerosene.

Effective July 8 the Standard Oil Co. (New Jersey) reduced the price of export gasoline in cases ½ cent a gallon to 28.90 cents. Export kerosene also was reduced ¼ cent a gallon, making the new prices of water white 20.15 cents in cases, and standard white 18.90 cents in cases.

winter tell their regular supply man that some offers have been made to sign up and if others can why can not you? In spite of the best endeavors of the sellers, both distributors and marketers, no refinery contracts have been offered except those that leave the price to be determined later. It has been suggested that the refiners themselves do not know how they stand any more than the sellers. This much can be said of last season's business and that is that during the greater part of the winter buyers on contracts were very slow to take their deliveries and forced refiners to sell their stocks, only later in the spring to have the market advance sharply. There was little satisfaction in last season's business and refiners can hardly be blamed for waiting to see what conditions will confront them this year any more than the distributor for wanting to have a price on which to base his dealings with his trade.

Gas Oil Steady

Gas oil is steady to firm with a demand that is made up of a number of smaller sales rather than any great big business. The smaller gas companies who have stuck to the use of gas oil have been quite active buyers, some ordering as high as 50 cars. There has also been considerable buying by some of the smaller industrial users who, according to distributors, are taking in the extent of their storage in some cases as high as 20,000 gallons. There are a great many industries that use gas oil for fuel, laundries, bakeries, small manufacturing plants and the like. These use oil for fuel on account of its cleanliness and convenience rather than any saving over the expense of coal for fuel. There have been no large sales reported to refiners for cracking but stocks are not so large as to be excessive and some refiners have announced during the week that they were out of the gas oil market for the present. The lowest price named has been 3⅞ cents but a good cracked gas oil will sell readily at 4 to 4⅛ cents with straight run gasoline sparingly offered and selling at some advance over the price of the cracked gas oil when available.

Fuel Oil Quiet

The fuel oil demand is seasonably quiet. The glass companies are closing down as they always do during the hot weather. Many of the auto plants are closed for changes, repairs and the annual clean-up and in many industries the time has been reached when each year they slacken their activities and consequently use less materials of all kinds including fuel oil. There is a steady routine demand and about the usual consumption but as many salesmen say buyers are hard to sell right now, for one thing because prices continue to be held at above last season. All grades are about 20 cents a barrel higher than a year ago. The buyers are expecting or claim to be that prices will have to come down and this makes them order in smaller amounts and also is teaching some of them they can use a heavier fuel than formerly. Those plants that will burn the average grade of Smackover oil can use a refinery oil in some cases as low as a 10 gravity if the plant is properly built and equipped. Of course, trouble is liable to come from an excess of free carbon. But the oil is being sold and consumed and large quantities of 10-14 gravity cracked fuel oil are being taken by some of the users of fuel oil. The prevailing price for this grade is from $1.10 to $1.12½. There has been a good deal of substituting of heavier oils than the specifications called for. In one case a manufacturer whose order called for a 28-30 oil was supplied with a constantly lower gravity of oil as the quotations were made more and more close until the seller got careless and delivered three cars of Smackover. Then the buyer posted himself and there was trouble and finally a new source of supply.

But such substitutions are rare and in most cases the seller has told the buyer that the lower gravity would be delivered, a price made to correspond and satisfactory working of the oil guaranteed. In this way many oil buyers have been able to decrease their costs and secure a satisfactory oil through the good suggestions of their oil man. In many instances it is possible for an expert fuel oil man by inspecting a plant to supply an oil that will give greater heat units with equal service at a lower price. The refining market is generally quoted as from 2½ to 5 cents lower but the local dealers say the trouble is that any declines in refinery costs are given at once to the consumer so that there is still a very narrow margin. The outlook is for a quiet market for a couple of months or six weeks at least although there has been some revival of activity in the steel industry, that may cause a larger consumption. However, it is the time of the year when the market is always quiet and no great activity is looked for in the near future, especially if the month prove to be one of high temperatures making the vacation desire too strong for the average worker to resist the impulse.

Lubs Little Changed

There is little change noted in lubricating oils. The price situation is generally firm and the demand is called very satisfactory. Refiners continue to report they are behind on orders for some of the most used grades. The N. P. M. A. is about ready to announce its new line of lubricants. These are to be sold under a single brand, that of "Red Hat Motor Oils," by the members and are to be manufactured by licensed compounders under rigid supervision it is stated. A full line will be offered the public and charts have been prepared showing the right oil for each motor car. The specifications have been prepared with great care and the licensed compounders will be held strictly to compliance with every item of the specifications. A list of the licensed compounders will be supplied to members who in ordering may designate their choice of compounding firm or the selection may be left to the lubricating engineering department of the N. P. M. A.

Tankwagon Situation

There has been no change in the tankwagon markets in this territory and no immediate change is anticipated. Jobbers are now feeling the vacation season demand and reports of business are generally very favorable. The May business is generally estimated through this territory as about 15 per cent ahead of last year and while June was not a good month from the standpoint of the weather, few jobbers complain that business was not good.

Regarding the demand from the increased number of cars, some estimate that the improvement in refining methods due chiefly to the wider use of some one of the numerous cracking processes by a greatly increased list of refiners has brought about an increase in the production of gasoline which is about equal to the increased demand for that product so that the consumption of crude this year will be about equal to that required for the smaller production of last year. This is the estimate of the head of one of the large refining organizations. The inference is that there will be plenty of gasoline for the jobber.

A further strengthening of the refinery markets is much desired by leading jobbers who say that while the price situation is all quiet on the surface there is a great deal of cutting in the shape of rebates and secret discounts. The local competition is very keen as is shown by the prices made by some of the largest refiners in the district for orders of such concerns as the local cab and trucking companies. The Benzolene Motor Fuel Co.'s order went at not over 10½ cents for 450 endpoint gasoline. One of the trucking companies placed its order for 40,000 gallons this week with a nearby refinery at a delivered price that figures 10¾ cents Group 3. Ordinarily these contracts as well as the Post Office contract, have gone to some of the smaller refiners. In the case of the Post Office contract, as stated at the time, the Standard Oil Co. was the low bidder making a flat price over the three months of July, August and September, that is a price based on the tankwagon with a maximum of the same price for the period. Some of the bidders were as low on the first month but asked for a cent more the two last months provided the tankwagon advanced. This very close figuring on the part of the larger refiners may not mean that they need the business but do not consider it good policy to let the smaller competitors have it except at a very low price.

The tankwagon distributors of fuel oils for both domestic and industrial use are very impatiently waiting for the time when they can cover their requirements and go to the customers with a price. Inquiries made of several regular domestic buyers did not disclose that they had been offered contracts for their next season's supply of furnace oil as had been charged. The Standard, Sinclair, Roxana and other large distributors state they have not made any contracts and in some cases that they will not make a seasonal contract at a price, in which case the competition for business promises locally at least to be a sort of free for all race to see who can get the order and if the weather should prove mild this fall and winter, the consumer may profit by the scramble for orders that will result.

TODAY'S CHANCES FOR ADVANCEMENT JUST AS GREAT AS THEY EVER WERE

By George H. Jones

Chairman of the Board, Standard Oil Co. of New Jersey

Sometimes you hear people say that nowadays there is not much chance for advancement; that business has grown so large and is so elaborately organized that the individual has come to be nothing but an obscure gear or spring in a huge machine; that the days of opportunity in American business are past. Do people ever try to talk that way to you? If they do, don't believe them; they are telling you things that are not true. The days of opportunity are not behind us. Chances for business advancement are just as great as they ever were; perhaps even greater in proportion as industry itself has gone forward, and as business units have grown larger and stronger. Today there are opportunities for acquiring knowledge of the business in which we are engaged that were denied many of us in our endeavor to progress.

It is true that the factors which made for outstanding success are somewhat different from those of a generation or two ago. Less is left to chance or to the circumstances of birth or of personality. With competition growing keener, the need for efficiency in production, in finance and in marketing grows more urgent every year. Industrial management has become scientific.

I would not have you believe that the importance of personal and accidental factors has been eliminated. Business advancement will always depend in large measure upon native abilities which are not equal in all of us, upon opportunities which cannot be controlled or even predicted, and upon personality which is only to a limited extent susceptible to cultivation and improvement. But more and more these factors need to be supplemented by the training without which no individual, however gifted or however opportunely placed, is qualified for positions of real leadership.

One way in which all human beings may be classified is into two groups: those who keep on learning after they reach maturity and those who do not. The people in the former group are the ones who are doing the important work of the world.

This education which we have been talking about as one of the qualifications for business advancement includes really two quite different kinds of information. First, there are the specific facts about the industry in which one is engaged and the company by which one is employed. For an executive or a salesman or a member of the office staff these facts are comparable to a mechanic's knowledge of his trade. They are indispensable and the more thoroughly we are grounded in them the better we are prepared for the duties and emergencies that confront us in our daily work.

But our education would stop too soon if it were limited to the piling up of facts about our own business. The successful business man, or woman, of today needs to have the breadth of view which comes with general knowledge and understanding. The real leader is not a person of one interest, of one idea, or of one book.

Business today is looking for leaders who have prepared themselves by acquiring not only specific information, to which I have just referred, but a general knowledge of world affairs. Then business requires that they shall merge their qualifications and their abilities with those of others to produce integrated and efficient organizations. In business as in baseball, the exploits of the individual star are well-nigh useless without organization and team work and the common pursuit of an object that is understood by all. Modern business is not a hundred-yard dash in which every one runs for himself. The corporation is bigger than the individual and it must go forward, though individuals drop out and pass their burdens to others.

The successful enterprise of the future will be the one in which individual leaders, selected for ability and the broadness and completeness of their preparation, are fitted into an organization in which each co-operates with all the others for the benefit of the business as a whole.

Do not allow yourselves to become discouraged; I do not care how dark the future may look for any of us along certain lines; how cramped our quarters are; how limited we regard our opportunities, we should keep at it. No one is successful in all his undertakings—Babe Ruth does not bat a home run every time he steps up to the plate—he fans out occasionally, but he swings just as hard when he strikes out as when he knocks a home run.

All successful men have their dark days; but it is the trouble and disappointments that temper the real hard steel in us. Iron goes through fire and comes out steel if it is treated right—it goes back to softer iron if it is not worked right. Disappointments and discouragements are the fires of experience that temper our real qualities.

*The Lamp.

BRANCH SALES OFFICE OPENED AT HOUSTON

The Garlock Packing Co., manufacturers of "quality controlled mechanical packings," whose general offices and factories are located at Palmyra, N. Y., announce the opening of a new branch sales office and warehouse at 805 Washington Avenue, Houston, Tex.

In its Houston warehouse will be carried a large stock of standard sizes of mechanical packings. This will enhance the value of its mechanical packing service to the oil fields and various industries in the State of Texas and adjacent territories. It will also expedite deliveries on packings of special sizes from its branch factory at Birmingham, Ala., and general factory at Palmyra, N. Y.

The Garlock Packing Co.'s district sales offices and warehouses which are maintained in all principal industrial centers, it is announced, can render a 48-hour or less delivery service on all standard mechanical packings.

XUM

Terminating Charcoal Tests of Gas

Method Developed by Which Gasoline Content Is Determined Accurately. Temperature Rise and Fall Important

By F. L. Kallam,*
Superintendent, Mutual Oil Co. of California

In testing natural gas for gasoline content a metered amount of the gas is allowed to pass through a tube containing activated charcoal. The gasoline absorbed by the charcoal is then recovered by means of distillation with glycerin and the volume of the condensate noted. With this information at hand the gallons of gasoline per thousand cubic feet of gas is readily calculable.

To arrive at the maximum gasoline content of any particular gas it is necessary to pass the correct volume of that gas through the charcoal. The knowledge of this volume, relative to the amount of charcoal used, or when to terminate the test, has been more or less optional with the various operators, with the result that check tests are infrequent. By standardizing upon a method for determining this maximum test point, considerable advance will have been made in determining gasoline yields from natural gas.

Heating Phenomenon

When wet gas is first passed through a tube filled with activated charcoal, rapid adsorption takes place, as is evinced by the heat generated at the first point of contact. This zone of heat gradually moves along the tube, leaving the layer of charcoal first in contact with the gas, cool. On very rich gas the heat generated is often so intense that it is impossible to keep one's hand on the metal tube. If the gas is allowed to flow through the tube for a long enough period, the heat zone will traverse the entire length of the tube, leaving the body of the charcoal at the original temperature. This phenomenon is familiar to all operators.

In view of this peculiarity, it has been assumed that this heat wave is related in some manner to the saturation of the charcoal with the constituents of the gas. However, no indication is given as to the degree of gasoline adsorbed relative to the other components of the gas. Consequently, the conditions existing in the charcoal at the point of gas exit have been investigated. As this region of the charcoal is saturated last, it is logical to presume that the best indication for stopping the test will be obtained at this point. This can be accomplished by placing a properly scaled thermometer in the open end of the tube, so that the bulb is entirely covered with the charcoal, and noting the temperatures. The packing of glass wool between the thermometer and the tube wall will prevent loss of carbon due to gas velocity.

Temperature Rises

Passing gas through a tube arranged as just described shows several interesting temperature changes. Figure 1 gives the results of temperature measurements obtained when passing various amounts of a rich gas through a tube containing 250 cc. of 8 to 14 mesh charcoal. The four characteristic temperature rises and falls, typical of all wet gases, is clearly illustrated. In some cases even a fifth rise and fall has been observed, although for such a point the rise, instead of being obtained as a distinct increase in temperature, is found as a period of constant temperature followed by a gradual decrease. In fact, the above may be said to be true for the fourth rise in some cases, especially with very dry gases. It is believed that with suitable apparatus, the fifth rise might more readily be detected, as perhaps might a sixth and even a seventh point. Because of the consistency of these characteristic temperature changes with the various gases, it is assumed that the number and intensity of the rises are governed by the number and percentage of members of the paraffin hydrocarbons present in the gas.

*San Francisco, Calif., meeting June 28 to July 1, 1926, of the American Society of Mechanical Engineers.

SCOPE OF CHARCOAL TEST

One of the most important features of testing natural gas for gasoline content by means of activated charcoal is the knowledge of when to terminate the test. This article deals with a method by which the maximum gasoline content may be determined without danger of under or over-saturating the charcoal when even an approximate content of the gas is unknown.

It points out that the correct termination point is determined from the temperature rises and falls in the charcoal due to the adsorption and displacement of the various hydrocarbons. The modifying effect of the condensing phase of the problem is also discussed with the following conculsions drawn:

A—It is possible to fractionate the hydrocarbon constituents of natural gas by the use of activated charcoal.

B—Commercial natural gasoline contained in gas should be construed to mean gasoline containing butane and all heavier hydrocarbons present in gas.

C—There is a definite relation between the volume of gas sampled and amount of charcoal used in order to obtain a maximum test of the commercial natural gasoline contained in the gas.

D—For atmospheric pressure and 32 degrees Fahrenheit condensation the maximum test for wet gas will be obtained in all cases between the fourth and 1.25 times the fourth saturation point for any particular gas and any particular amount of charcoal. This assures of neither under nor over-saturating the charcoal. For gases ranging between 0.5 and 2.5 gallons content, the test should be terminated at 1.25 times the fourth saturation point. For gases ranging from 2.5 gallons and up, the test should be terminated at the fourth saturation point.

E—When condensing under 45 pounds per square inch absolute and 60 degrees Fahrenheit all tests may be stopped at the fourth saturation point. This method will give higher results than will atmospheric condensation.

Constant-Volume Adsorption

From numerous tests it has been determined that charcoal will adsorb practically a constant volume of hydrocarbons from a gas regardless of the volume passed through the carbon. This is of course assuming that a sufficient quantity of gas is first passed through the charcoal to furnish hydrocarbons in volume to fill the surface and capillaries of the charcoal. The passing of more gas than this amount will not increase or change the volume of hydrocarbons adsorbed. With these ideas in mind it is now in order to correlate the temperature rises and the gasoline adsorbed when using activated charcoal.

Replacement of Air and Moisture

Referring again to Figure 1, it will be noted that with the initial passage of gas through the charcoal a slight drop in temperature takes place. This may be attributed to the fact that the gas is replacing air and moisture contained in the charcoal. In no case should this initial momentary drop be mistaken for a temperature rise-and-fall point.

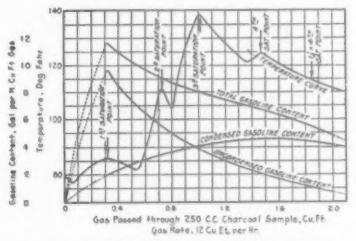


Figure 1.—Relation between saturation Points and gasoline content.

First Saturation Point

Charcoal possesses the inherit property of adsorbing the gasoline constituents of a gas most readily, showing marked preference for heptane, hexane and pentane in the order named. Analysis of numerous gases shows that these hydrocarbons are always present to a lesser degree than the lighter members of the paraffin series, as butane, propane, ethane and methane. Of these latter, methane generally predominates, and for this hydrocarbon, charcoal shows the least inclination to adsorb and retain. Thus when gas first comes in contact with charcoal, there is not enough heptane, hexane and pentane present to satisfy the capillary capacity of the charcoal, with the result that butane, propane, ethane and methane are also adsorbed. In other words, with the first fractional volume of gas exposed to the adsorbent, all of the hydrocarbons present are adsorbed and condensed within the pores of the charcoal. The charcoal continues to adsorb until the condensed hydrocarbons equal in volume the volume of the capillaries, and up to this point, no hydrocarbons escape adsorption. As more and more gas enters the charcoal, beyond this point, a greater amount of heavier hydrocarbons are presented for adsorption; but in order for the charcoal to hold these, it is necessary to provide the capillary volume. This it can do only by releasing some already adsorbed constituents, and these will be the ones for which it has the least affinity.

This is the condition existing in the charcoal at the top of the first temperature rise (Figure 1), or first saturation point, as it will hereafter be called. The rise in temperature up to this point can thus be said to be due to the heat of adsorption of the various hydrocarbons, and in particular to methane, because of the latter's greater predominance in the gas.

It is at this first saturation point that the maximum gasoline content will be found, bearing in mind the relation between gasoline and gas volumes. This content we shall consider as 100 per cent of that attainable. However, due to the composition of this gasoline as previously explained, exorbitant condenser pressures would have to be applied, accompanied by low temperatures, in order to secure complete condensation. Such gasoline, even if produced, would at present have no commercial value because of it volatility.

Consider the example given, Figure 1, and assume the test terminated at the first saturation point, or, after 0.31 cubic feet of gas had passed through the charcoal. Upon distillation of the charcoal, to recover the gasoline adsorbed from this amount of gas, and condensing the vapors given off in the usual laboratory ice-bath condenser at atmospheric pressure, the condensate would be such as to show a gasoline content for the gas tested of 2 gallons per 1,000 subic feet. This would be misleading information unless it were realized that a greater part of the vapors were being uncondensed; in this case enough to give a content of 9.6 gallons per 1,000 cubic feet. Hence if all the vapors were condensed the total gasoline content would be 11.6 gallons per 1,000 cubic feet of gas. This means that at the first saturation point for the particular gas examined, and standard conditions of condensing, a content of only 17 per cent of that adsorbed can be shown.

The Second Saturation Point

It now remains to be seen what hydrocarbons will be released after the first point of saturation is reached in order that the charcoal may avail itself of the more desirable gasoline constituents. Obviously, this will be methane, for which the charcoal has the least attraction. This expulsion of methane is clearly shown in Figure 1 by the fall in temperature after the first saturation point, showing that the heat of adsorption during this period is utilized to revaporize the methane. Adsorption is all this time taking place, except that of methane which from now on passes unmolested through the charcoal. This is shown by the temperature again rising, signifying adsorption of heavier hydrocarbons. To secure the required volume, the charcoal selects ethane to a greater degree than before, where previously it adsorbed methane. The extent of these replacements will of course be controlled by the individual constituents and composition of the gas under test. Thus at the second saturation point we find the condition that for the charcoal to adsorb further, it will be necessary to replace the lightest hydrocarbon already adsorbed, ethane, in order to provide capillary volume.

The gasoline now available in the charcoal for extraction, by virtue of the absence of all methane, is slightly more stable. From the example it will be seen that the total maximum content is now 9 gallons per 1,000 cubic feet and that by atmospheric condensation, content of 3.4 gallons. This latter amount is 38 per cent of that obtainable.

The Third Saturation Point

Passing the second saturation point, we find ethane being replaced by heavier hydrocarbons, of which propane is in the greatest volume. Now, two constituents, previously adsorbed by the charcoal, are allowed to pass through unadsorbed, methane and ethane. The result is that the third saturation point designates that for further adsorption to take place, the propane will have to be replaced.

The gasoline adsorbed and held by the charcoal at the third saturation point is very "wild," due largely to the amount of propane present. Continuing the example, the total gasoline content is seen to be 8 gallons, while the condensed gasoline yields a content of 4 gallons per 1,000 cubic feet of gas. It can readily be seen that 50 per cent of the available

gasoline content is now obtainable by atmospheric condensation.

The Fourth Saturation Point

As before, passing a saturation point designates that the lightest hydrocarbon held up to this point is being replaced, this time being propane. All methane, ethane and propane coming in with the new gas now passes untouched through the charcoal, while all the butane, pentane, hexane, etc., is absorbed. Here again there is a deficiency in the volume of the heaviest hydrocarbons, so that a very large amount of butane is adsorbed in order to satisfy the charcoal as regards volume of hydrocarbons held. When this volume is obtained, the fourth saturation point has been reached as shown by the fourth temperature rise in Figure 1.

Sixty-seven per cent of the total gasoline content, or 4.5 gallons, is the result obtained by condensation at this point in our example. This content is, however, only 37 per cent of the total content obtained at the first saturation point.

Total-Saturation Point

Continuing past the fourth saturation point, the butane is replaced by the heavier hydrocarbons in the incoming gas, of which pentane is in the greater percentage. Hexane will be adsorbed (and other heavier hydrocarbons if they are present) more readily than pentane, but the latter is required to furnish the necessary volume. The fifth point of saturation will thus correspond to the point where all the pentane will have to be replaced in order for further adsorption to take place.

This process of replacement continues until a sufficient volume of the heaviest hydrocarbon present in the gas to fill the capillaries of the charcoal has been passed through the latter. From this point on, no hydrocarbons will be adsorbed; all passing unadsorbed through the charcoal. This condition is the total-saturation point, and the gasoline content based on this volume will perhaps be only 5 per cent of that shown at the first saturation point. But, of course, practically all of the gasoline adsorbed at this point will be condensed. The stability of this product is very great, but not as great as one would expect. It seems that while charcoal replaces or selects the heavier hydrocarbons in preference to the lighter ones, some of the latter are absorbed or dissolved in the heavier members of the series, which in turn are retained by the charcoal. This secondary absorption is naturally small, but does account for some of the unexpected vapor pressures encountered at times in charcoal gasoline.

Commercial Natural Gasoline

From the analyses of many samples of natural gasoline, it has been found that very few, if any, hydrocarbons lighter than propane are present. This is due of course to their exceptionally low boiling points. Propane is found to the extent of 1 to 5 per cent, and while it too has a low boiling point, it cannot be freed from the gasoline without carrying away with it other heavier and more valuable gasoline constituents. Hence propane is a serious and objectionable constituent of gasoline, being of such nature as to be commercially detrimental. By eliminating propane, a greater amount of butane may advantageously be contained in gasoline without abnormal losses in handling.

At a risk of repetition it is desired to point out that at the fourth saturation point the charcoal contains butane and all the heavier hydrocarbons present in the gas. These constitute a gasoline in which dissolved gases are minimized, with the result that losses are due mainly to the evaporation of true liquid constituents. This being a highly desirable commercial product, it follows that the fourth saturation point will always assure the adsorption of the maximum commercial natural gasoline constituents from a gas by charcoal. This then, is the proper point at which to terminate the test.

Distillation Effect

However, inasmuch as a gasoline determination is composed of three distinct operations, adsorption of the gasoline (as has already been discussed) and the subsequent distilling and condensing, it is necessary to consider these latter two factors before drawing final conclusions as regards the proper termination point for the test.

The function of distilling the gasoline from the charcoal may be briefly discussed and dismissed. All of the gasoline may be removed from the charcoal, regardless of the point of saturation at which the adsorption test was stopped. This is easily accomplished by the application of heat and some vaporizing agent, as glycerin, mercury, oil, etc., which will replace the gasoline in the pores of the charcoal. The heat applied must be of such intensity as to vaporize and carry the gasoline into the condenser. Distillation may take place under any convenient or desired pressure.

Condensing Effect

By stopping the test at the fourth saturation point we are assured of condensing within the pores of the charcoal, a volume of desired gasoline which will give a maximum content for the gas. But in order to obtain this content, it is necessary to recover this adsorbed gasoline by distilling and condensing. As a result of countless tests however, using 250 cc. of 8 to 14 mesh charcoal and distilling and condensing equipment having the same dimensional ratio to each other in every instance, it has been found that the maximum gasoline content is not always obtained at the fourth saturation point.

This is because condensing at atmospheric pressure and 32 degrees Fahrenheit it would only be possible to obtain approximately complete condensation if the vapors handled were 100 per cent butane. Naturally, with the vapors composed of butane plus heavier hydrocarbons, together with air and other fixed or uncondensable gases, the partial pressures on each constituent in the condenser will be lowered to such an extent, that condensation is not as effective as it would otherwise be. It can be seen from this that the development of a general law covering all cases of testing is impossible because of our present lack of knowledge regarding the composition of the various individual gases.

One remedy for such a condition is to run the test past the fourth saturation point, or in other words, displace, at least to some extent, the butane with pentane. It has been found, however, that the maximum test always lies within a narrow limit, that is between the fourth saturation point and a point which corresponds to 1.25 times the volume at the fourth temperature rise. This latter point may be defined as the saturation of the charcoal secured by passing 1.25 times the volume of gas required to reach the fourth saturation point through the charcoal. This rule holds for wet gases ranging from one-half gallon upward. For gases with ½ to 2½ gallon contents the 1.25-point has been found very satisfactory for the maximum yield, but for the richer contents, the fourth saturation point will give slightly higher results. This is probably true because these gases contain greater percentages of pentane, hexane, etc., and hence smaller amounts of butane, so that it is unnecessary to displace any of the latter.

By resorting to pressure condensation, it is possible to recover 95 to 97 per cent of the gasoline (by weight) adsorbed by the charcoal at the fourth saturation point. This makes it convenient for field testing, as the adsorption can be stopped in every case at the fourth saturation point. A pressure of 45 pounds per square inch absolute and a temperature of 60 degrees Fahrenheit will assure of this degree of condensation in practically all cases. Though here again, dimensions of condenser and still, relative to the size of sample used and vapors handled, will have a bearing upon consistent check results. Even after weathering condensate obtained by this method to atmospheric conditions, with a loss from 10 to 15 per cent, a higher yield will be obtained for the same gas than will be by atmospheric condensation. This advantage is due to the vapor pressure-temperature relation gained by increasing the pressure of condensation.

ROCKY MOUNTAIN AREA

(Continued from Page 50)

in the central part of the development and will not extend the field materially.

Runs From the Fields

Salt Creek	32,180
Teapot	1,380
Big Muddy	3,470
Grass Creek	3,120
Elk Basin	800
Greybull	20
Rock River	2,980
Notches	240
Rex Lake	270
Lance Creek	1,460
LaBarge	200
Poison Spider	1,300
Osage	350
Hamilton Dome	1,120
Lander	310
Byron	30
Lost Soldier	4,880
Ferris	90
Simpson Ridge	180
Cat Creek	2,830
Lake Basin	180
Sunburst	25,000
Hogback	480
Rattlesnake	1,342
Artesia	3,000
Florence	425
Moffat	3,489
Tow Creek	135
Fort Collins	5,086
Iles Dome	60
Boulder	25
Rangeley	100
Total	96,532

NORTH TEXAS MARKET SHOWS IMPROVEMENT

WICHITA FALLS, Tex., July 12.—Several products, including the 64-66 375 gasoline, 41-43 water white kerosene, gas oil and fuel oil were in demand from north Texas refiners the past week and as a result these were stronger than a week ago. Some improvement also was shown in natural gasolines although demand for these still is far from satisfactory.

Approximately 1,000,000 gallons of the 64 gasoline was purchased by the Atlantic Refining Co. on the basis of 11.65 cents. This put a slightly firmer touch to this product although spot prices were not materially different from those of a week ago. This grade still could be bought from 12 to 12¼ cents.

Other gasolines were not stimulated by this purchase but on the other hand some cheap U. S. Motor (58-60 437) gasoline appeared on the market. Some sellers, anxious to unload, offered some of this material as low as 10⅝ cents. Other sellers, who made sales as high as 10⅞ cents claimed that the cheaper gasoline could not be guaranteed to be strictly U. S. Motor specifications.

The 56-58 450 gasoline was in slightly better demand although buyers claimed they could get what they wanted from 10¼ to 10⅜ cents. The 60-62 400 product was weaker and was available at 11½ cents easily.

The purchase of kerosene and the consequent strengthening of this product was one of the chief features of the market. No definite check has been made of the exact amount of this product bought from north Texas refiners but it is reported here that more than 5,000,000 gallons were ordered from the entire Mid-Continent, the purchases being made from 5¼ to 5¾ cents.

Kerosene still was available Monday at 5¾ cents but the prevailing quotation was 6 cents and many sellers were getting the latter figures with a steady increase being shown in demand for this material.

The Atlantic Refining Co. made additional purchases of gas oil for cracking stock the past week amounting to several hundred thousand gallons. This company has been buying off and on for several months as this product became available. This purchase was reported to have been made at 4 cents. Some cracked and dark gas oil can be found below this figure but even this has been firm on north Texas markets for some time.

The north Texas fuel situation also took another flurry during the week with the city of Denver again in the market. This again put the fuel market in fair shape with $1.30 apparently a bargain price for spot buyers. This represents an increase of approximately 10 cents over the market of the previous week.

The improved natural gasoline tone was due to an increase in small orders and inquiries. These came from many refiners who have been using very little if any of this material in their operations this year.

Grade C during the week tightened to a firm price of 8 cents with the B grades from 8 to 8¼ cents and the A grades from 8¼ to 8½ cents.

SUPERINTENDENTS TO HOLD SERIES OF MEETINGS

(Continued from Page 32)

of the Doherty cracking process now in operation at the local plant. This process was developed by the petroleum manufacturing division of the Cities Service Co., of which the Empire is a subsidiary organization. The process belongs to the tube and tank type and operates with a gas oil from the topping plant. The yields are comparable with other cracking processes operating on the same type cracking stock. An interesting feature of this process is that nothing but fresh gas oil is charged to the unit. The fraction of the gas oil which corresponds to what is termed recycle stock of other processes is handled without leaving the unit. After the lighter ends have been distilled off and fractionated, the bottoms enter a reaction chamber where the recycle stock is vaporized off. The fraction is condensed blended and again brought to cracking temperature without leaving the unit.

A feature of interest noted by the visitors was the widespread use of electrical power. The Empire management in the near future expects to replace steam with electrically driven equipment wherever possible. In the boiler house the feed water heating and treating system was an interesting phase of the plant operation.

Another interesting feature was the gas recovery installation. The gas gathering system of this installation covers the entire plant, including the cracking equipment. The gasoline is recovered by the absorption oil method. The gasoline obtained, it was stated, was about 1 per cent of the crude charge.

The visitors also inspected all departments of the lubricating plant including the compound house.

The company manufacturers a complete line of lubricating oils obtainable from Mid-Continent crude. One phase of the lub plant is the wedge burner equipment for revivifying fullers earth. This equipment was developed by the Bethlehem Steel Co. With this equipment the fullers earth is not brought into contact with the flame but is heated by hot air in a series of hearths varying in temperature.

At the compound house methods used in making greases were shown. The company also makes several special products.

PRAIRIE OFFICIALS ON VACATION

Dana H. Kelsey, vice president and general manager of the Prairie Oil & Gas Co., and Judge T. J. Flannelly, chief counsel for the company, accompanied by Mrs. Kelsey and Mrs. Flannelly, left Independence, Kans., this week for the Canadian Rockies, and from there will go to Vancouver, B. C., and take ship for the inside passage to Alaskan points.

ASKS GASOLINE INQUIRY

Governor Pothier of Rhode Island, has appealed to President Coolidge to have the Federal Trade Commission inquire fully into activities of the chief producers and distributors of gasoline and its by-products to determine if a monopoly exists.

PIPELINE VETERAN DIES

TOLEDO, Ohio, July 12.—Michael George Norton, 68, superintendent of pipelines for the Paragon Refining Co., died from attack of acute indigestion at his Toledo home Sunday.

XUM

REFINING AND MARKETING

A. P. I. COMMITTEES ON TRANSPORTATION

A meeting of the American Petroleum Institute general committee on railroad transportation will be held at the Congress Hotel, Chicago, beginning at 2 o'clock Thursday afternoon, August 5, according to an announcement from New York by W. R. Boyd, Jr., chairman. The committee has been asked to convene to hear the report of its sub-committee, the Car Service committee, which will meet at Chicago the morning of the same day to discuss with representatives from each of the several railroad traffic associations uniformity and the rate for excess empty mileage payments in several districts.

A meeting of the subcommittee of the "Sidetrack Agreement" committee also has been called. This subcommittee will hold its session in New York on July 23 with a similar committee representing the committee on uniform general contract forms of the American Railway Engineering association.

GASOLINE EXTRACTION PLANT EAST OF CASPER

CASPER, Wyo., July 10.—Shuster Brothers of Casper, the New York Oil Co. and Simms and others have reached an agreement for the placing of a gasoline extraction plant near Evansville, a few miles east of Casper. This new plant is to be built to take care of the increased natural gas production from Teapot Dome.

The gas from Teapot comes in through the old Central Pipe Line Co.'s line to a point north of Evansville and is then sent through a branch line to the New York Oil Co. mains at Casper. The Teapot gas contains more gasoline than is removed by the New York Oil Co.'s plant at Teapot Dome, so another plant was proposed and the plan adopted to place the new plant about 3 miles east of Casper at the terminal of the pipeline.

CHICAGO MAY TAX GASOLINE

CHICAGO, July 10.—The city government in its efforts to increase its revenue is known to be considering some form of a tax on motor fuel. Alderman Toman of the finance committee has asked for a report and it is not unlikely the city council will suggest such a tax which may take the form of an inspection fee or a direct city tax, if such can be levied. Chicago and Illinois motorists have been very active in opposing any gasoline tax with the result that Illinois is one of the four states in which there is no tax. Governor Small is open in his suggestion of such a tax and state officials generally favor the gasoline tax as a prompt and easy method of increasing the revenue of the State. There is almost a certainty that a more determined effort than ever will be made to take Illinois out of the ranks of the gasoline tax-free states.

WITHDRAW TAX SUIT

FRANKFORT, Ky., July 12.—The Gulf Refining Co. has withdrawn its suit against the state asking the refund of $232,418.42 paid the state under the three-cent gasoline tax law the last six and a half months of 1924. The reason for the company's withdrawal was not announced but there was considerable opposition to the suit on the ground that the gasoline consumers and not the company had paid the tax. Eleven other companies also had filed suit for the tax refund. These companies so far have taken no action on the matter since the Gulf Refining Co. withdrew its suit.

WICHITA PIPE LINE CO.

The Wichita Pipe Line Co. at a special meeting of the board of directors of the company last week in Wichita Falls, Texas declared an additional 5 per cent cash dividend. The company operates a co-operative pipe line which serves the refineries in Wichita and Archer counties. A total of 40 per cent in cash dividends have been paid the two years the pipe lines have been in operation.

Roy B. Jones, president of the Panhandle Refining Co., is president of the company and W. M. Priddy, vice-president of the American Refining Co., vice-president. L. V. Hull is vice-president and general manager.

DIAMOND PETROLEUM CO. PURCHASES STATIONS

CHICAGO, July 10.—The distributing business conducted at Paris and surrounding towns of this State by Ray Spicer under the name of the Independent Oil Co. has been merged with the Diamond Petroleum Co., with headquarters at Louisville, Ky. The service station of Lloyd Pulver at Marshall has been included. The Independent Oil Co. conducted stations at Paris, Olney, Champaign, West Union, Westville, Sidell, Arcola, Monticello and Chrisman, Ill.

Mr. Spicer has announced that there will be no changes in the personnel of the company. He will continue his road oil and tank car business under the name of the Independent Oil Co., and continue in the management of the stations formerly operated by him, under the new ownership. It is also stated that five additional stations are to be built in the district in which the merged companies operate. T. M. Martin, secretary and general manager for the Diamond Petroleum Co., arranged the details of the merger for his company.

The Diamond Petroleum Co., operating stations in Kentucky, Indiana and Illinois, is a subsidiary of the Mid-Continent Petroleum Corp., Tulsa, and will distribute its product exclusively.

MARKETING OFFICES WILL MOVE TO TULSA

Because of the company's rapid marketing expansion in Oklahoma and Arkansas, the Continental Oil Co. is preparing to move the headquarters and practically all offices of its southwestern marketing division from Kansas City to Tulsa. The move will be made soon after August 1, when the company will get possession of the entire third floor of the Court Arcade building, now under construction.

ROXANA ENGINEER DIES

CHICAGO, July 10.—J. M. Southgate, construction engineer of the Roxana Pipe Line Co. at East Chicago, died suddenly at St. Margaret's hospital following an operation for appendicitis. Mr. Southgate had been in charge of the construction work at East Chicago and Hammond refinery.

MONTANA'S TAX VOID

HELENA, Mont., July 12.—Montana's 1921 gasoline tax law has been held unconstitutional by the court hearing the evidence in the suit of the state to collect taxes under this law from Montana refiners. This is the second suit this year Montana refiners have won, the first being in the attempt of the state to collect taxes under a law passed in 1923. This also was held unconstitutional.

OKLAHOMA COMMISSION HEARING FOR REFINERS

OKLAHOMA CITY, Okla., July 12.—The Corporation Commission has notified refiners and all dealers in gasoline and kerosene that a hearing will be held August 10 to consider amending some of the rules relating to the handling and inspection of these products. Some important changes are proposed in rules of the oil and gas conservation bureau of the Commission, made necessary under radically different marketing conditions from those prevailing in 1919 when the present rules were adopted.

Subjects to be considered are the manner of inspection and the displaying of information with reference to tests; payment of fee to inspector; prohibiting adulteration, mixing, blending or changing the quality of gasoline, kerosene or other petroleum products after inspection, "without the inspection of any adulterated, blended or changed product;" requiring test reports on containers and copies sent to purchasers; and "Requiring the furnishing of distillation tests by refiners and manufacturers of products sold or offered for sale, the same to be attached to the bill of lading covering shipments, and the refiner, manufacturer, broker or jobber to be held responsible for failure so to do; and the specifications and character of apparatus to be used in making distillation tests."

BARTLESVILLE STATION EXPERIMENTS IN SHALE

The Bureau of Mines station at Bartlesville, Okla., is installing equipment to carry on research work in connection with the refining of shale oil. According to present plans all of the experimental work of the bureau will be conducted at the Bartlesville station. The shale oil is obtained at the Government's plant in Colorado and then shipped to Bartlesville. The Government's investigation will cover fractionation, treating and all other phases of refining necessary to secure finished products suitable for marketing. The work will be in charge of R. H. Espach.

The refining division of the Bartlesville station has been working for several months in an investigation covering the handling of pressure distillate with bubble towers. The determination of the effect of this method of fractionation on treating is the main object of the investigation. This experimental work is being conducted by R. N. Beall. Not all of the work in connection with this investigation has been completed.

TRANSCONTINENTAL STATIONS

OKLAHOMA CITY, Okla., July 12.—Nine service stations in Oklahoma City, formerly owned and operated by the Pat Henry Oil Co., have been purchased by the Transcontinental Oil Co. of Tulsa. The Pat Henry Oil Co. is retaining its lubricating compound plant.

SELLS BLACKHAWK INTEREST

Walter Caward of Waterloo, Iowa, has sold his interest in the Blackhawk Oil Co. to the interests that control the Hawkeye Oil Companies. He retains his interest in the Caward-Dart Co., of Waterloo, manufacturers of tank trucks, visible gasoline pumps and oil burners. Mr. Caward is at present in Miami, Fla.

RICHARDSON LUBRICATING BUYS

CHICAGO, July 10.—The Richardson Lubricating Co., of Quncy, Ill., has bought the business of the Independent Oil Co., of Decatur, consisting of a bulk and several service stations. The Richardson Co. was already the operator of two stations at Decatur.

ANTIFREEZE TESTS REPORTED TO S. A. E.

Tests made at the Bureau of Standards recently indicate that glycerin, wood or denatured alcohol, calcium and magnesium chlorides, and ethylene glycol are the most efficient and safest of the materials that have been used in automobiles to prevent freezing, according to a report presented by H. K. Cummings, associate physicist of the bureau, at the semi-annual meeting of the Society of Automotive Engineers.

Other materials that have been used for the purpose but which have seriously objectionable properties are kerosene, light lubricating oil, honey, cane sugar, glucose or corn sugar, and common salt.

To be wholly satisfactory, any material used, alone or in solution with water, must have a very low freezing point, a boiling point as high as that of water but not much higher, ample capacity to absorb heat, must be readily soluble and remain in solution, be generally available and moderate in price. It must not become thick and sluggish at low temperatures, evaporate rapidly at the boiling point, be inflammable, corrosive to metals nor injurious to rubber, and should not have a disagreeable odor.

The materials that satisfy these requirements most fully are commercially pure and neutral glycerin, ethylene glycol, the alcohols and calcium chloride. A 31 per cent solution of calcium chloride with water, by weight, resists freezing at a temperature of 60 degrees Fahrenheit below zero, while a 25 per cent solution prevents freezing at 17 degrees below. It is corrosive to metals, however, and may cause leakage and result in ignition trouble by getting on the spark plugs and wiring and absorbing moisture from the atmosphere. This tendency can be greatly reduced by the addition of a small quantity of some soluble chromate to the solution.

Wood alcohol in equal volume with water will prevent freezing at—40 degrees, and a 60 per cent solution of denatured alcohol at —30 degrees. But alcohol boils at 172.4 degrees, which results in its rapid evaporation and tends to keep the engine too cool for the most efficient operation. Kerosene, on the contrary, has a high boiling point and may result in overheating in mild weather.

Glycerin costs several times as much as alcohol but does not evaporate and can be drained out of the cooling system and used the following season. A 65 per cent solution with water resists freezing at —52 degrees. If it is neutralized and does not contain electrolytes it does not corrode metals nor attack rubber. However, it becomes thick and flows slowly when very cold.

Ethylene glycol is a patented by-product of glycerin and at present costs about the same. It is more effective than glycerin or either of the alcohols, a 58 per cent solution having a freezing point of —56 degrees. It does not attack metals or rubber, does not become viscous like glycerin nor evaporate like alcohol. It can be recovered at the end of the season and used again.

LOUISIANA GASOLINE TAX

BATON ROUGE, La., July 12.—The bill to increase the state gasoline tax from 2 to 4 cents has passed both houses of the legislature and as a result will be submitted to the voters for ratification next November. Revenue from the new tax will go into the general highway fund.

JENKINS CRACKING PROCESS

PRODUCES QUALITY GASOLINE

Facts from performance

CORROSION

One of the features of the Jenkins Cracking Process is that no appreciable corrosion occurs at any point of the equipment irrespective of the charging stock.

This gives a much longer life to the entire unit with no excessive depreciation or maintenance costs.

GRAVER *Founded 1857 Corporation*

EAST CHICAGO, INDIANA

NEW YORK Grand Cent. Term. | CHICAGO Steger Building | TULSA Atlas Life Bldg. | HOUSTON West Building

Brief Items for Plant Operators

OPERATING PERSONNEL AT UNION REFINERIES

An almost complete revision in the organization of the manufacturing department of the Union Oil Co. of California has been announced by R. D. Matthews, head of the department. The appointments were: R. E. Haylett, technical assistant to Mr. Matthews: L. G. Metcalf, transferred from superintendent of Oleum refinery to main office as assistant manager of refineries; T. F. Ott, lubricating technologist; R. W. Garman, manager natural gasoline and gas operations; W. A. Raine, from chief chemist to manager research and development with headquarters at Wilmington; D. R. Merrill, from associate chemist at Oleum refinery to assistant manager of research and development; A. Roy Heise, from superintendent Los Angeles refinery to manager Oleum refinery; J. N. Holden, superintendent engineering and utilities, Oleum refinery; Chris Stamm, superintendent refined oil division; C. F. Adam, superintendent lubricating and asphalt division; C. G. Brownlee, from superintendent Vancouver refinery to manager Los Angeles refinery; John Salmond, superintendent Los Angeles refinery; L. L. Rebber, superintendent cracking operations; T. M. Bolton, from superintendent Bakersfield refinery to superintendent Vancouver refinery; Homer M. Ambrosier, from Oleum refinery to acting superintendent Bakersfield refinery.

The following now constitute the manufacturing committee: A. G. Page, chairman; R. E. Haylett, vice chairman; W. L. Stewart, Jr., secretary; L. G. Metcalf, A. Roy Heise, C. G. Brownlee; T. F. Ott, W. A. Raine, R. W. Garman, Ralph J. Reed and W. L. Standard.

The Union Oil Co. now operates five refineries with a normal running capacity of 80,000 bbls. of crude daily. It also is rebuilding the Brea refinery, which was partly destroyed in the recent big oil fire, and is doubling the capacity of the Bakersfield plant to handle 5,000 barrels daily.

RESUME OPERATIONS AT LOVELL REFINERY

LOVELL, Wyo., July 12.—Plans to recondition the old Lovell refinery and to resume operations have been announced by the owners. The plant not only will be enlarged but the Ryan process will be installed. This process is claimed to be especially adapted for the treatment of crude with a considerable sulphur content as found in this district.

The Lovell refinery has been idle three years. The plant at present has two steam stills and includes a site of 17 acres.

NEW PLANTS IN TEXAS

Arrangements for two new gasoline plants in Texas were announced the past week. The Gas Chemicals Corp. of Denver and Colorado Springs will erect a plant in the Panhandle Field costing $1,000,000 and having a daily capacity of 24,000 gallons of gasoline. The Chestnut & Smith interests will erect a plant near Cisco, where they have leased several tracts and obtained gas rights. The Coyle and McGuire Engineering Co. will install the equipment at the Panhandle plant.

VISIT WICHITA FALLS PLANT

WICHITA FALLS, Tex., July 12.—Nearly 100 persons, members of the Technical club at Wichita Falls and their families, were guests at the plant of the American Refining Co. last Thursday evening. Following an inspection and trip through the plant the party joined in a picnic and barbecue dinner.

NEW USE FOR WAX

A new use for wax has been found by Berry V. Stoll, vice-president of the Stoll Oil Refining Co., which operates a refinery at Louisville, Ky.

Mr. Stoll is a member of the Board of Park Commissioners of Louisville, Ky., and has charge of all the playgrounds in that city. The park superintendent complained that the tennis nets rotted quickly, hardly lasting a season. The use of asphaltic tar while it lengthened the life of the nets was objectionable because the tar soiled the clothes and hands of the players.

It was then decided to dip the nets in paraffine wax. The experiment has added to the life of the nets with no objectionable features.

Mr. Stoll decided to pass on this unpatented discovery (none applied for), to oil men generally through The Oil and Gas Journal so they might advise the managers of the city parks, country clubs and other places where tennis nets are in use.

IMPROVE THERMOPOLIS PLANT

THERMOPOLIS, Wyo., July 12.—B. V. Hole and associates, who recently took over the plant of the Alliance Oil Refining Co. at Thermopolis under a two-year lease, are reconditioning the plant and starting an extensive improvement program. Among the additions to the plant will be a fourth shell still and several filter and tar stills. The plant will be operated on crude from the Warm Springs pool.

"SQUEEZER" PLANTS FOR GAS AT VENTURA

LOS ANGELES, Calif., July 12.—That much natural gasoline has been going to waste in the supposedly dry gas from natural gasoline plants in the Ventura field was learned here when it became known that gas distributing companies are finding it profitable to erect "squeezer" plants on their lines.

Another one of these plants will be erected by the Midway Gas Co., which will spend $100,000 on the installation of equipment to extract gasoline from the supposedly dry gas purchased from the Ventura natural gasoline plants for distribution to its consumers. Several other companies already are operating these "squeezer" plants profitably on their pipe lines.

The only explanation so far offered by operators for the wet content in their gas sold as dry is that in their attempt to overload their plants a considerable amount of gasoline is allowed to remain in their gas. Some of these plants are being operated to two and three times their rated capacity.

BALTIMORE ASPHALT PLANT

Pan American Petroleum & Transport Co., has just completed and put into operation an asphalt plant at Baltimore, Md. The plant has a capacity of 10,000 barrels of crude daily.

AMONG THE TECHNICAL MEN

S. H. Ingberg, physicist, United States Bureau of Standards, in charge of research concerning fire resistance and fire hazards of materials, has been engaged in this work since 1915.

S. H. Ingberg

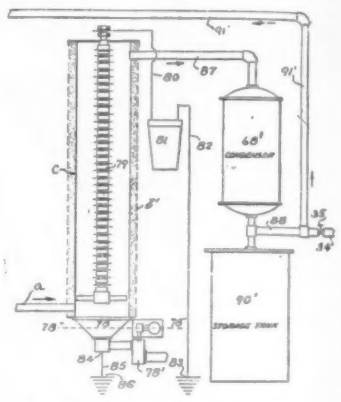
Mr. Ingberg was born June 24, 1877, and was educated in the common schools of Minnesota and Concordia College, Moorehead, Minn., graduating in civil engineering from the University of Minnesota in 1909. The next year he took graduate work in theoretical and applied mechanics at the University of Illinois and during 1910-11 was instructor in theoretical and applied mechanics at Lehigh University, his summer vacations being devoted to the design and construction of reinforced concrete buildings. He was in structural engineering practice with James Stewart & Co. and the Chicago, Milwaukee & St. Paul Railway Co. from 1912 to 1914, inclusive.

It was in 1915 that Mr. Ingberg joined the Bureau of Standards, Department of Commerce, in Chicago, and was assigned to cooperative work on fire tests of building materials in which capacity he continued until 1920 when he was transferred to Washington, D. C.

Mr. Ingberg is the author of many articles published in engineering journals on theoretical and applied mechanics, the design and construction of buildings and the fire resistance of building materials and constructions as well as of technical papers published by the Bureau of Standards. His point of contact with the petroleum industry consists mainly in the bearing his work has on possibilities for improvement of structural conditions from the fire hazard standpoint. Many very serious disasters in the industry could have been prevented by better structural protection, such as of storage tanks, warehouses and distributing stations and in the future conservation through such means will have to receive greater attention than was possible in the early days of the industry.

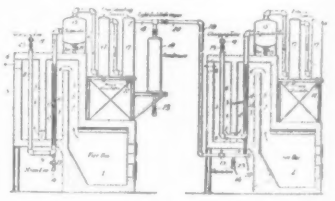
Recent Patents

1,585,573. Method of Electrochemical Treatment of Unsaturated Hydrocarbon compounds Resulting from the Cracking of Oils. Donald L. Thomas, New York, N. Y. Original application filed April 24, 1919, Serial No. 292,425. Divided and this application filed February 9, 1925. Serial No. 7,886. Eight claims. (Cl. 196—81.)



4. The electrochemical process of treating precracked unsaturated hydrocarbon compounds resulting from heat cracking of oils, in order to polymerize the same, that step which consists in subjecting such compounds to the silent discharge of a high tension electric current while under the simultaneous influence of high temperature and pressure in order to produce by combination of their molecules a final stable product of different gravity and boiling point from the compound originally treated, substantially as described.

1,585,224. Process of and Apparatus for Distilling Oils. Clive Morris Alexander, New York, N. Y. Filed October 9, 1919. Serial No. 329,624. Ten claims. (Cl. 196—85.)



1. A process for nondestructive distillation of hydrocarbon oil comprising passing the oil in one direction through a zone where it is heated, injecting steam into the oil at a plurality of points along its passage through said zone and causing same to flow therethrough concurrently with the oil, maintaining the liquid and vapor phases present in intimate contact up to the point of separation, so as to raise the mean vapor tension, and separating the lighter and heavier fractions by fractional condensation.

BARTLES-MAGUIRE PLANT START

CHICAGO, July 10.—The refinery of the Bartles-Maguire Co., at East Chicago has been equipped with Jenkins process stills and completely modernized and is practically ready to operate. The operation will begin July 15 according to present plans and in a short time the products will be offered to the customers of the Bartles-Maguire Co. through its Milwaukee distributing organizations. The Jenkins process stills installed are of the latest type and embody several improvements.

Oil Securities Market Continues Firm

Demand for Gasoline Has Important Influence. Drop in Pennsylvania Crude Considered as of Local Significance

By N. O. Fanning

New York Bureau, The Oil and Gas Journal, Room 543, 30 Church St., New York

NEW YORK, July 12.—There have been no outstanding developments affecting specifically petroleum securities during the past week. Talk of further consolidations still persist but nothing immediate is expected from negotiations that have been going on in connection with several companies for the past few months.

The tone of the market has been firm reflecting probably the continued heavy demand for gasoline but also being in part attributable to a generally firmer market for several special classes of securities. The drop in Pennsylvania crude oil prices showed some indication of unsettling the market in petroleum shares but was interpreted as a local situation. Nevertheless it served to focus attention on the more complex features of the oil situation.

Shell Transport & Trading

Walter H. Samuel, chairman of Shell Transport & Trading, at recent annual meeting in London, included discussion of Shell-Union Oil Corp. in the United States, in which Royal Dutch-Shell Group owns 70 per cent of common stock. He said: "It will perhaps help you to realize the enormous business which has been built up in the United States when I tell you that the total consolidated balance sheet of that company and its subsidiaries amounts to more than $330,000,000 or considerably more than that of your own; its last balance sheet shows cash of their own, entirely outside that of the Shell and Royal Dutch companies, amounting to more than $28,000,000. Their actual production for 1925 was 5,636,000 tons, as against 5,492,000 in 1924.

Royal Dutch-Shell

Commenting on the annual report, just issued, the Wall Street Journal says:

Founded 35 years ago on exploration and development of crude oil production in the Dutch East Indies, which formed the basis for its growth into the second largest oil unit in the world, the Royal Dutch-Shell Group is now getting close to one-half of its crude oil production in the United States. In three countries of the Western Hemisphere, United States, Mexico and Venezuela, the group's operations last year resulted in yielding just over two-thirds of its total production all over the world.

These figures show the marked changes which have transpired in the producing activities of the big Dutch-English combine in recent years. As recently as 1920 its world production totaled 36,881,000 bbls., about half of which came from Dutch East Indies. Last year the United States alone yielded the group about 5,500,000 bbls. more than its world total in 1920.

The Dutch East Indies, of course, is still a highly important source of supply, yielding better than 60,000 bbls. daily last year. It has been a wonderfully prolific and profitable operation with practically no competition drilling and has yielded the group something more than 275,000,000 bbls. of crude since production started, according to one estimate.

Biggest Properties in United States

But the world's biggest producer of crude oil today has its most important producing properties in the United States. It may be, and probably is, a fact that because of its dominance in the Dutch East Indies, it is husbanding its proven properties there to a greater extent than in this country, where producing activities are more competitive. Through the Shell Union Oil Corp., in which it has a 72 per cent common stock interest, it produced an average of 116,000 bbls. daily in this country last year. This was several thousand barrels a day more than domestic production of the Standard Oil Co. of New Jersey. Gulf Oil and Standard of California were the next nearest large producers of American oil.

Last year the Dutch Group produced in this country 43.7 per cent of its total world production of crude. As recently as 1920 it obtained close to 50 per cent of its crude production in the Dutch East Indies, where last year about 23 per cent of its crude was produced there.

The group's figures are not likely to be net production to the company because of minority holdings in some instances. This is particularly true in the case of its American production, there being a 28 per cent minority stock interest in Shell Union Oil common.

Leads in Production

The progess of the group in maintaining leadership in crude oil production largely rested on the remarkable growth of its American production, to where it was 13 per cent in 1925 and 15 per cent in 1923 of this country's yield. Thus, in 1920, its total production averaged 101,000 bbls. daily, of which this country furnished 26,800 bbls., or 26.5 per cent. Last year its production all over the world totaled 96,676,332 bbls. for a daily average of 265,000 bbls., of which the United States furnished 116,000 bbls. daily, or 43.7 per cent. Thus, from 1920 to the end of 1925, the group's world production was increased about two and one-half times, its Dutch East Indies yield expanded about 30 per cent, while the yield of its American properties gained 430 per cent.

This quadrupling of production in the United States in six years occurred during a period when total American production was increased by about 75 per cent, from 442,929,000 to 755,852,000 bbls. last year. This is a typical example of the manner in which the owned production of huge oil units has been expanded in the last decade, centralizing more than ever the producing department of the industry.

By reason of the merging of Pacific Oil in Standard of California, the latter company has passed the Royal Dutch as the largest crude producer in this country. But the group still leads in world oil production.

The vagaries of crude oil production are rather strikingly illustrated by the march of events in the group's Mexican production. Its peak occurred in 1923, when Mexico and California simultaneously pushed its daily average production above the 300,000-bbl. mark. Together they yield 67 per cent of the group's world production that year. But Mexico started sliding late in 1923, when salt water intruded, and in two years its yield dropped 70 per cent from the peak. Meanwhile, California held well, Mid-Continent production was increased and Venezuela was really put on the map as a producing country. However, Royal Dutch has not replaced the production lost in Mexico three years ago, and last year its world production was some 14,000,000 bbls. less than in 1923.

The development of the group's properties in Venezuela has been extremely rapid. It is of interest to the General Asphalt holders, as that company has the royalty interest, about 12½ per cent, in Venezuelan production. In 1920 the Dutch Group produced about 1,500 bbls. daily there, for a total of 590,000 bbls. for the year. Last year the Venezuelan properties were developed to a point of productivity where they yielded 12,326,910 bbls., an average of 34,000 bbls. daily, with production at the end of the year much above that figure.

Humphreys Corporation

Humphreys corporation is offering to stockholders 25,000 shares of its no par capital stock at $20 a share, in the ratio of one new share for each ten shares held, as of July 25. Warrants will be mailed to stockholders as soon after July 25 as possible. Entire 25,000 shares has already been subscribed for by leading stockholders. Funds derived from the additional stock to be issued are required for operation and development of the company's holdings.

Humphreys corporation now owns leases on 79,481 acres in Texas and 11,860 acres in Louisiana. Texas acreage is located in Chambers, Cherokee, Crockett, Duval, Eastland, Fayette, Galveston, Garza, Glasscock, Hardin, Harris, Howard, Hunt, Jefferson, Liberty, Mitchell, Pecos, Reagan, Sterling, Throckmorton, Wharton, Shackelford, Upton, Williamson and Young Counties.

Leonard Oil & Development Co.

In a letter to stockholders of Leonard Oil & Development Co., John W. Leonard, president, states he has heard of different rumors regarding titles on certain properties of the company in Colombia, South America.

Regarding the Sogamoso tract, on which the company recently completed its first well, he states the land on which the well is drilled and on the whole of Sagamoso tract "has been privately owned and the record of the uncontested titles to it since 1844 are on file in the office of the Minister of Industries in Colombia."

He adds that the Colombia Syndicate, Lobitos Oilfields, Ltd., and Ricardo Rendon, a Colombian citizen, have filed applications for government leases on the land on which the Leonard Oil well is located. "The leases have not been granted," he says, "and when the applications come up for action they will fall because this land was privately owned prior to 1873."

Relative to the Leonard company's interest in the Lorent-Valenzuela tract, he states this was owned originally by two

(Continued on Page 132)

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

Stocks—	Par	Clos. Quot. July 12	Clos. Quot. July 2	1926 High	1926 Low	1925 High	1925 Low	1924 High	1924 Low
Amerada Corp.	..	30	30⅜	31	21¾	..	..	..	..
Atlantic Ref., com.	100	114	119	128¾	97	117½	95⅛	140½	78½
Barnsdall "A"	25	25½	26¾	33½	23½	33½	18¾	29½	14
California Pet., com.	25	33⅝	34¼	38⅛	30⅝	34⅞	23⅞	29	19⅞
Houston Oil	100	*62	61	72	50¼	85	59	82½	61
Independent Oil & Gas	..	24¼	24⅜	34	20¼	41⅜	13½	16⅛	5¾
Indian Refining	10	9½	10⅛	13¾	9⅛	14¼	5⅛	7	3⅞
Lago Oil & Trans.	..	23	22⅝	24⅝	19¼	..	..	..	..
Louisiana Oil	10	17	17⅞	19⅝	12	23¾	13¾	..	..
Maracaibo	..	24	24⅝	28⅞	20¾	35½	20⅜	37¼	25⅜
Marland	..	59½	61	53⅜	49¼	60⅛	32⅝	42	29
Mexican Seaboard	..	10⅛	11⅜	12⅛	6	22½	9	25¾	14⅛
Mid-Continent Pet.	..	30	31¾	41	25⅝	38	25¾	40¼	22⅝
National Supply	50	61⅞	60¼	65⅞	55½	71	54⅜	72½	54
Oil Well Supply	25	30¼	30	36	30½	38	33⅜	..	..
Pan. Amer., B	50	72	73⅝	76½	56⅛	83⅞	59½	65	44⅛
Pan Amer., Western B	..	38⅜	39¾	46	34	49⅜	37¼	..	..
Phillips Pet.	..	47	48¼	48½	42½	47½	36¼	52½	28½
Producers & Refiners	50	12¾	12⅞	17½	11	32⅝	12⅝	32½	29⅜
Pure Oil, com.	..	27½	27⅞	31	26	33⅜	25⅛	30⅛	20
Royal Dutch, N. Y., sh.	13.40	52⅞	53⅛	57⅜	50	57⅜	48¼	59½	40⅜
Shell Transport	10	*43	*43	48⅝	42	49	39⅝	42	33
Shell Union, com.	..	27⅜	27¼	28½	24	28⅜	21⅝	22½	15⅜
Simms Pet.	10	18½	19⅛	28⅞	20¾	28½	17¾	24	10⅝
Sinclair Consolidated, com.	..	21⅜	22½	24⅞	19⅝	24⅞	17	17½	15
Skelly Oil	25	33¼	35⅝	36⅛	27	32½	21⅜	29	17⅛
Standard of California	25	59⅜	62⅝	62¼	54	67¼	51½	68½	55½
Standard of New Jersey, com.	25	*43⅞	*45⅛	46⅝	40¼	47½	38⅝	41½	33
Sun Oil Co.	..	33	*34	41⅝	31½	43⅞	38⅝	..	..
The Texas Company	25	53½	54¾	55¼	49	55	42⅜	45⅝	37⅜
Texas Pacific Coal & Oil	10	14	14⅜	19½	12⅛	23⅜	11	15⅛	8¼
Tide Water Oil	25	32	33	..	..	..	..	..	..
Transcontinental	..	5¼	4	4⅜	2	5⅜	3½	6¼	3⅜
Union Oil of California	25	55½	53	56	37¼	43⅞	33⅛	39	35½
Union Tank, com.	100	*92	*92	94⅞	84¼	‡134	118	132⅞	94
White Eagle Oil & Refining	..	27½	27½	29⅜	26½	31⅝	25⅝	29⅝	23⅛
Standard Oils									
Anglo-American Oil	£1	18⅛	17½	19⅜	16½	26⅝	17½	18⅝	14⅝
Borne Scrymser	100	*260	*230	248	226	240	205	164	150
Buckeye Pipe Line	50	*50½	*51	59½	52	72	63½	85½	61
Chesebrough Mfg. Co.	25	*73	74⅞	72⅝	63	74	48¼	62½	29½
Continental	10	21⅜	23	25⅞	19¼	31⅛	21⅞	..	..
Crescent Pipe Line	25	15	14¾	16	14½	17½	10	20	11⅜
Cumberland Pipe Line	100	*107½	108	137	108	156	128	148	108
Eureka Pipe Line	100	55	*55	63⅜	47⅜	96	61¼	105	74
Galena Signal, com.	100	20	*19½	32½	17¼	68½	23⅜	69⅜	62½
Humble Oil & Refining Co.	25	60⅜	63⅜	68⅛	52	99	42½	43⅜	36
Illinois Pipe Line	100	134½	133	144	131	154½	124	161	123
Imperial Oil, Ltd.	..	35	35⅜	38⅜	32½	39¼	27¼	119	99
Indiana Pipe Line	50	68¼	65¼	68	58	84	57¼	100	66
International Pet. Co.	10	32⅛	33⅜	35¼	28⅜	35⅜	22¼	34⅜	16⅞
National Transit Co.	12.50	15	*15¼	20⅜	15⅜	25½	16½	26⅞	20⅝
New York Transit	100	48¼	*47	50	39	79	50	97	54½
Northern Pipe Line	100	75½	73½	80½	70⅝	88	67½	107½	72
Ohio Oil Co.	25	59⅛	60	67¾	58	75¼	60	79⅛	53
Penn.-Mex. Fuel	25	*18¼	*19	23	15	44	19	35⅝	27
Prairie Oil & Gas	25	51⅝	53⅜	60¼	48	65⅛	45⅞	269	193
Prairie Pipe Line	100	124¼	124¼	127	122½	129¾	105	111	100
Solar Refining Co.	100	190	190	212	184½	259	200	240	170
South Penn Oil	25	37½	38	50	35	‡197	139	176	117
Southwest Pa. Line	100	50½	51⅛	54½	47½	84	50	89	68
Southern Pipe Line	50	66	*67	74½	61½	103	63	100	80½
Standard of Indiana	25	64½	65⅜	70½	61⅜	70⅜	59½	69⅝	54¼
Standard of Kansas	25	25¼	25½	36½	25	46	30¼	50½	32½
Standard of Kentucky	25	120½	120¼	174⅜	108	137	114⅞	121⅞	101
Standard of Nebraska	100	47	49	†51⅛	†42	270	231	262	198
Standard of New York	25	33⅜	34⅞	47¼	31⅝	48⅝	40	48	37⅜
Standard of Ohio, com.	100	*285	302	362	292½	369	338	337½	277
Swan & Finch, com.	25	›7½	*16½	21	18	27	12	28	20
Vacuum Oil	25	102⅜	103⅜	109⅜	94⅛	109½	80½	83½	50½
Miscellaneous									
Gulf Oil Corp. of Pa.	25	86	86	93⅜	82½	98¼	63½	67⅝	56
Tide Water Associated	..	24½	24⅞	27	21	..	..	..	..

*Bid, no sales. ‡Old stocks. †New stocks.

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange was as follows:

July 12	59.43	June 7	58.92	May 3	57.23
July 2	60.38	May 28	59.81	April 26	57.39
June 28	60.17	May 24	58.84	April 19	55.63
June 21	59.91	May 17	57.63	April 12	56.07
June 14	59.40	May 10	57.08	April 5	56.78

XUM

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

	July 13		July 6		June 29	
OKLAHOMA (Group 3)—						
50-52 450 end point	.10¾		.10¾	.10⅞	.10⅝	.10¾
56-58 450 end point	.10½	.10⅝	.10½	.10¾	.10½	.10¾
58-60 450 end point	.10⅝	.10⅞	.10⅝	.10⅞	.10⅝	.10¾
58-60 437 end point (U. S. Motor)	.10⅞	.11	.11		.10¾	.11
60-62 400 end point	.11¾		.11¾	.11⅞	.11¾	.12
64-66 375 end point	.12⅛	.12¼	.12⅛	.12¼	.12	.12¼
68 70 360 end point	.12½	.12¾	.12½	.12¾	.12½	.12¾
KANSAS—						
58-60 437 end point (U. S. Motor)	.11¼	.11½	.11⅜	.11½	.11¼	.11⅜
NORTH TEXAS—						
48-50 450 end point (Naphtha)	.10⅜	.10⅝	.10½	.10¾	.10½	.10¾
50-52 450 end point (Naphtha)	.10½	.10¾	.10⅝	.10¾	.10½	.10¾
56-58 450 end point	.10⅜	.10½	.10½	.10⅝	.10½	.10¾
58-60 437 end point (U. S. Motor)	.10⅝	.10¾	.10⅞	.11	.10¾	.11
60-62 400 end point	.11½	.11⅝	.11⅝	.11¾	.11¾	.12
64-66 390 end point	.11¾	.12	.11⅞	.12	.11⅞	.12
64-66 375 end point	.12	.12¼	.12	.12¼	.12⅛	.12¼
68-70 360 end point	.12½	.12⅝	.12½	.12⅝	.12½	.12⅝
NORTH LOUISIANA—						
58-60 437 end point (U. S. Motor)	.11¼	.11½	.11¼	.11½	.11¾	.12
64-66 375 end point	.12¼	.12½	.12¼	.12½	.13	.13¼
ARKANSAS—						
58 60 437 end point (U. S. Motor)	.11¼	.11½	.11½		.12	.12¼
64-66 375 end point	.12¼	.12½	.12¼	.12½	.12¾	.13
ROCKY MOUNTAIN STATES—						
*58 60 437 end point (U. S. Motor)	.13⅞	.14	.14	.14⅛	.13¾	.14
PENNSYLVANIA—						
52 Naphtha	.12½	.12¾	.12½	.12¾	.13¼	.13½
54 Naphtha	.12¾	.13	.12¾	.13	.13½	.13¾
56 Naphtha	.13	.13¼	.13	.13¼	.13¾	.14
58 Naphtha	.13¼	.13½	.13¼	.13½	.14	.14¼
60 Gasoline	.13¾	.14	.13¾	.14	.14¼	.14½
62 Gasoline	.14½	.14¾	.14½	.14¾	.14½	.14¾
64 Gasoline	.14¾	.15	.14¾	.15	.14¾	.15
66 Gasoline	.15¾	.16	.15¾	.16	.15¾	.16
68-70 Gasoline	.18¼	.18½	.18¼	.18½	.18¼	.18½
CALIFORNIA—						
54-58 437 end point (U. S. Motor) domestic	.12½	.13	.12½	.13	.12½	.13
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 end point (Naphtha)	.10¾		.10½	.10¾	.10¾	
56-58 450 end point	.10½	.10¾	.10½	.10⅝	.10⅝	.10¾
58-60 437 end point (U. S. Motor)	.11		.10⅞	.11	.10¾	.11
60-62 400 end point	.11¾	.12	.11¾	.12	.11¾	.12
64-66 375 end point	.12	.12¼	.12	.12¼	.12⅛	.12¼
68-70 360 end point	.12½	.12¾	.12½	.12¾	.12¾	

*Colorado points.

NATURAL GASOLINE

	July 13		July 6		June 29	
OKLAHOMA (Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.08¼	.08¾	.08¼		.08⅜	.08½
Grade A, 72-79.9, 375 e.p., rec. 90%	.08¼	.08⅜	.08¼		.08⅜	.08½
Grade BB, 84 92, 375 e.p., rec. 85%	.08	.08⅛	.08	.08⅛	.08⅛	.08¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.08	.08⅛	.08	.08⅛	.08¼	
Grade C, 80 90, 375 e.p., rec. 78%	.08		.07¾	.07⅞	.08	
NORTH TEXAS—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.08¼		.08⅛	.08¼	.08½	
Grade A. 72-79.9, 375 e.p., rec. 90%	.08¼		.08¼		.08½	
Grade BB, 84-92, 375 e.p., rec. 85%	.08	.08⅛	.08	.08⅛	.08⅛	.08¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.08	.08⅛	.08	.08¼	.08⅛	.08¼
Grade C, 80-90, 375 e.p., rec. 78%	.08	.08⅛	.07¾	.07⅞	.08	
NORTH LOUISIANA—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.08½	.08¾	.08½	.08⅝	.09	.09⅛
Grade B, 76-83.9, 375 e.p., rec. 85%	.08¾	.08⅝	.08¼	.08½	.08¾	.09
Grade C, 80-90, 375 e.p., rec. 78%	.08⅛	.08¼	.08	.08¼	.08½	.08¾
CALIFORNIA—						
78-85 absorption, 360-390 end point	.15½	.16	.15½	.16	.15½	.16
78 84 compression, 350 end point	.15½	.16	.15½	.16	.15½	.16
CHICAGO DISTRICT (Based on Group 3)—						
Grade AA, 80-87.9, 375 e.p., rec. 90%	.08¼	.08½	.08¼		.08½	
Grade A. 72-79.9, 375 e.p., rec. 90%	.08¼	.08½	.08¼		.08½	
Grade BB, 84-92, 375 e.p., rec. 85%	.08	.08¼	.08	.08⅛	.08¼	
Grade B, 76-83.9, 375 e.p., rec. 85%	.08	.08¼	.08	.08⅛	.08¼	
Grade C, 80-90, 375 e.p., rec. 78%	.07⅞	.08	.07¾	.07⅞	.08	.08⅛

MOTOR NATURAL GASOLINE (BLENDS)

	July 13		July 6		June 29	
OKLAHOMA (Group 3)—						
60-62 450 end point	.10¼	.10½	.10¼	.10¾	.10¼	.10¾
64-66 437 end point	.10½	.10¾	.10½	.10¾	.10½	.10¾
NORTH TEXAS—						
64-66 437 end point	.10½	.10⅝	.10½	.10⅝	.10½	
PENNSYLVANIA—						
*60-62	.13½	.13¾	.13½	.13¾	.13½	.13¾
*64-66	.13¾	.14	.13¾	.14	.13¾	.14
*66-68	.13¾	.14	.13¾	.14	.13¾	.14
*68-70	.14	.14¼	.14	.14¼	.14	.14¼
CHICAGO DISTRICT (Based on Group 3)—						
60-62 450 end point	.10½	.10¾	.10½	.10¾	.10¾	.11
64 66 437 end point	.10¾	.11	.10¾	.11	.11	.11¼

*At Sistersville, W. Va.

BURNING OIL

	July 13		July 6		June 29	
KANSAS—						
41-43 water white Kerosene	.06¼	.06½	.06¼	.06½	.07	.07¼
OKLAHOMA (Group 3)—						
41 43 water white Kerosene	.05¾	.06	.05¼	.05½	.05¾	.06
42-44 water white Kerosene	.06¼	.06½	.06	.06¼	.06¼	.06½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.06	.06¼	.06¼	.06½	.07	.07¼
ROCKY MOUNTAIN STATES—						
*40-41 water white Kerosene	.09¼	.09½	.08¼	.08½	.09	.09¼
NORTH TEXAS—						
41-43 water white Kerosene	.05¾	.06	.05¼	.05⅜	.05¾	.06
ARKANSAS—						
41-43 water white Kerosene	.06¼	.06½	.06¼	.06½	.07¼	.07½
PENNSYLVANIA—						
43 Kerosene prime white	.08½	.08¾	.08¾	.09	.09	.09¼
45 Kerosene water white	.08¾	.09	.09¼	.09½	.10	.10¼
46 Kerosene water white	.09¼	.09½	.10¼	.10½	.10¾	.11
47 Kerosene water white	.10	.10¼	.10¾	.11	.11¼	.11½
34 Neutral	.07¼	.07½	.07¼	.07½	.07¼	.07½
34 Sundebloom Neutral	.08½	.08¾	.08½	.08¾	.08½	.08¾
36 Miners' Neutral	.06¾	.07	.06¾	.07	.06¾	.07
300 Mineral Seal	.07¼	.07½	.07¼	.07½	.07¼	.07½
CALIFORNIA—						
38-40 water white (high burning test)	.07¼	.08½	.07¼	.08½	.07½	.08½
Engine distillate, 43-45 445 end point	.10¼	.10½	.10¼	.10½	.10¼	.10½
Engine distillate, 42-44 450 end point	.10	.10¼	.10	.10¼	.10	.10¼
CHICAGO DISTRICT (Based on Group 3)—						
41 43 water white Kerosene	.05¾	.06	.05¼	.05½	.06⅛	.06¼
42-44 water white Kerosene	.06¼	.06½	.06	.06¼	.06½	.06⅝

*Colorado points.

FUEL OILS

	July 13		July 6		June 29	
KANSAS—						
24 26 Fuel Oil	1.30	1.35	1.35	1.40	1.35	1.40
32-36 Gas Oil	.04½	.04¾	.04½	.04¾	.04¼	.04⅜
38 40 Distillate	.04⅝	.04¾	.04⅝	.04¾	.04½	.04⅝
OKLAHOMA (Group 3)—						
Below 22 Fuel Oil (sellers' cars)	1.15		1.15	1.17½	1.15	1.20
22-26 Fuel Oil (sellers' cars)	1.17½	1.20	1.17½	1.20	1.17½	1.20
24-26 Fuel Oil (sellers' cars)	1.20		1 20		1.20	
26-30 Fuel Oil (sellers' cars)	1.22½	1.25	1.22½	1.25	1.25	1.27½
28-30 Fuel Oil (sellers' cars)	1.30	1.35	1.25	1.27½	1.30	1.32½
32-36 Gas Oil (cracking stock)	.04	.04⅛	.03⅞	.04	.04	
36-38 Distillate	.04⅜	.04½	.04⅛	.04⅜	.04⅛	.04⅜
38-40 Straw Distillate	.04½		.04⅜	.04½	.04⅜	.04⅝
NORTH TEXAS—						
24-26 Fuel Oil (sellers' cars)	1.30	1.35	1.20	1.22½	1.22½	1.25
32-36 Gas Oil (straw)	.04⅛	.04¼	.03¾	.04	.03⅞	.04
38-40 Straw Distillate	.04⅜	.04½	.04¼	.04½	.04¼	
NORTH LOUISIANA—						
18 20 Fuel Oil	1.35	1.40	1.35	1.40	1.35	1.40
32-36 Gas Oil	.04¼	.04½	.04¼	.04⅜	.04	.04¼
36 38 Distillate	.04½	.04¾	.04⅜	.04½	.04¼	.04½
ARKANSAS—						
38-40 Distillate	.04½	.04¾	.04½	.04¾	.04½	.04¾
32-36 Gas Oil	.04¼	.04½	.04¼	.04½	.04¼	.04½
16-20 Refinery Fuel Oil	1.25	1.30	1.20	1.25	1.20	1.25
GULF COAST (South Texas)—						
Gas Oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
Fuel Oil	1.75	1 85	1.75	1.85	1.75	1.85
PENNSYLVANIA—						
30-34 Fuel Oil	.05¾	.05⅞	.05½	.05¾	.05½	.05¾
36-40 Fuel Oil	.06¼	.06½	.06¼	.06½	.06¼	.06½
CALIFORNIA—						
33-35 Distillate	.04¾	.05	.04¾	.05	.04¾	.05
27-35 Distillate	.04	.04½	.04	.04½	.04	.04½
15-20 Fuel Oil (at tide water)	1.00	1.04	1.00	1.04	1.00	1.04
27 plus Diesel	1.15	1.19	1.15	1.19	1.15	1.19
CHICAGO DISTRICT (Based on Group 3)—						
24-26 Fuel Oil (sellers' cars) Group 3	1.20	1.25	1.20	1.25	1.20	1.25
22-26 Fuel Oil (sellers' cars)	1.17½	1 20	1.20	1.22½	1.20	1.22½
18 22 (El Dorado)	1.15	1.17½	1.17½	1.20	1.20	
18-20 (Smackover)	1.20		1.20		1.20	
32 36 Gas Oil	.04	.04⅛	.04	.04⅛	.04	.04⅛
36-38 Distillate	.04½	.04⅝	.04½	.04⅝	.04¼	.04
38-40 Straw Distillate	.04½	.04⅝	.04¼	.04⅜	.04½	.04⅝

LUBRICATING OILS AND WAX

	July 13		July 6		June 29	
OKLAHOMA (Group 3)—						
70-80 vis., 2½ color, 20-25 cold test	.06	.07	.06	.07	.06	.07
100 vis., 3 color, 20-25 cold test	.06½	.07	.06½	.07	.06½	.07
100 vis., 2 color, 20-25 cold test	.07	.07½	.07	.07½	.07	.07½
150 vis., 4 color, 20-25 cold test	.09¾		.09¼	.09¾	.09¼	.09¾
150 vis., 3 color, 20-25 cold test	.09½	.10	.09½	.10	.09½	.10
180 vis., 4 color, 23-28 cold test	.10	.10½	.10	.10½	.10	.10½
180 vis., 3 color, 23-28 cold test	.10½	.11½	.10¼	.10½	.10¼	.10½
200 vis., 4 color, 23-28 cold test	.11¼	.11½	.11	.11½	.11	.11½
200 vis., 3 color, 23-28 cold test	.11¼	.12¼	.11¼	.11½	.11¼	.11½
220 vis., 4 color, 25-30 cold test	.13		.14	.14½	.14	.14½
220 vis., 3 color, 25-30 cold test	.13½	.14	.14½	.15	.14½	.15
240 vis., 4 color, 25-30 cold test	.14	.14½	.14	.14½	.14	.14½
240 vis., 3 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
280 vis., 4 color, 25-30 cold test	.15½	.16½	.15½	.16	.15½	.16
280 vis., 3 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
180 vis., 5 color, 23-28 cold test	.09¾	.10¼	.09¾	.10¼	.09¾	.10¼
200 vis., 5 color, 23-28 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
220 vis., 5 color, 25-30 cold test	.12	.12¾	.12	.12¾	.12	.12¾
240 vis., 5 color, 25-30 cold test	.13	.14	.13	.14	.13	.14
280 vis., 5 color, 25 30 cold test	.15	.16	.15½	.16	.15½	.16
Cylinder Stocks:						
180-200 vis., S. R. green, 40-45 cold test	.08¼	.11	.08½	.11	.08½	.11
190-200 vis., S. R. green, 40-45 cold test	.08	.08½	.08	.08½	.08	.08½
170-190 dark green, 40-45 cold test	.06	.06½	.06	.06½	.06	.06½
190-200 vis. @ 210 "D" Bright Stock	.33	.35	.33	.35	.33	.35
200-210 vis. @ 210 "E" Bright Stock	.30	.31	.30	.31	.30	.31
150 vis. @ 210 "E" Bright Stock	.27	.28	.27	.28	.27	.28
150 vis. @ 210 "D" Bright Stock	.28	.31	.28	.31	.28	.31
Waxes:						
122-124 White Crude Scale Wax	.04¾	.04⅞	.04¾	.04⅞	.04¾	.04⅞
PENNSYLVANIA—						
150, 3 color	.24		.24½		.24½	
180, 3 color	.27½		.28		.28	
200, 3 color	.29		.29½		.29½	
220, 3 color	.31		.32		.32	
600, steam refined	.14		.14¼		.14½	
635, steam refined	.18		.18		.18	
650, steam refined	.19		.19½		.20	
600, Pennsylvania flash	.25½		.25½		.26	
630, Pennsylvania flash	.32½		.32½		.32½	
*550, E filtered	.19		.19		.19	

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

600, E filtered	.19½		.19½		.19½	
*600, E filtered	.20½		.20½		.20½	
600, D filtered	.26½		.26½		.26½	
550, E filtered	.18		.18		.18	
550, D filtered	.22		.22		.22	
Pennsylvania Bright Stock	.41		.41		.41	
122-124 White Crude Scale Wax	.05¼	.05⅜	.05¼	.05⅜	.05⅛	.05¼
†124-126 White Crude Scale Wax	.05⅜	.05½	.05⅜	.05½	.05¼	.05⅜

*At Warren, Pa. †At New York City.

GULF COAST (South Texas)—						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07½	.08	.07½	.08	.07½	.08
No. 3 color, 200 vis., pale oil	.11½	.12	.11½	.12	.11½	.12
No. 3½ color, 300 vis., pale oil	.12½	.13½	.12½	.13½	.12½	.13½
No. 3¾ color, 500 vis., pale oil	.14½	.15	.14½	.15½	.14½	.15½
No. 4 color, 750 vis., pale oil	.18½	.19	.18½	.19½	.18½	.19½
No. 2 plus color, 200 vis., pale filtered	.21½		.21½		.21½	
No. 2 color, 300 vis., pale filtered	.24½		.24½		.24½	
No. 2½ color, 500 vis., pale filtered	.27½		.27½		.27½	
No. 2½ color, 750 vis., pale filtered	.35½		.35½		.35½	
No. 5 to 6 color, 200 vis., red oil	.09½	.10	.09½	.10	.09½	.10
No. 5 to 6 color, 300 vis., red oil	.11½	.13	.11½	.13	.11½	.13
No. 5 to 6 color, 500 vis., red oil	.12½	.13	.12½	.13½	.12½	.13½
No. 5 to 6 color, 750 vis., red oil	.16½	.17½	.16¼	.17½	.16¼	.17½
CALIFORNIA—						
130 pale, 2½-3 color	.10	.11½	.10	.11½	.10	.11½
200 vis., 2½ 3 color	.13½	.14½	.13½	.14½	.13½	.14½
300 vis., 3 -3½ color	.15	.16	.15	.16	.15	.16
350 vis., 3½-4 color	.16½	.17½	.16½	.17½	.16½	.17½
400 vis., 3½-4 color	.18	.19	.18	.19	.18	.19
Red Neutrals:						
200 vis., 4½-5 color	.12	.13	.12	.13	.12	.13
300 vis., 5 -6 color	.13	.14	.13	.14	.13	.14
400 vis., 5 -6 color	.15	.16	.15	.16	.15	.16
500 vis., 4½-5 color	.18	.19	.18	.19	.18	.19
500 vis., 6 -6½ color	.16	.17	.16	.17	.16	.17
600 vis., 6½ plus color	.17	.18	.17	.18	.17	.18

Note: Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) REFINERY PRICES

	July 13	July 6	June 29
Gasoline:			
U. S. Motor, 58-60 437	.15	.15	.15
Export, 64-66 375	.17	.17	.17
Kerosene, prime white, 41-43	.09⅛	.09⅛	.09⅛
*Bunker Oil, 14-16, per bbl.	1.75	1.75	1.75
*Diesel Oil, 28 30, per bbl.	2.50	2.50	2.50
Gas Oil, 28 plus	.06¾	.06¾	.06¾
Cylinder Oil, light filtered, 600 s.r.	.29	.29	.29
Bright Stock, No. 5, 150 vis., at 212 F.	.41	.41	.41
White Neutral, No. 1, 170 vis., 1 color	.37	.37	.37
Pale Oil, "25," 170 vis., 3½ color	.13	.13	.13
Pale Oil, "28," 100 vis., 2 color	.08	.08	.08
Red Oil:			
No. 3, 160 vis., 7 color	.11	.11	.11
No. 2, 212 vis., 5½ color	.12	.12	.12
No. 1, 265 vis., 5½ color	.13½	.13½	.13½
Polar, 295 vis., 6 color	.14	.14	.14
Paraffin Wax, refined:			
120-122 a.m.p., per lb.	.06	.06	.06
125-127 a.m.p., per lb.	.06⅛	.06⅛	.06⅛
130-132 a.m.p., per lb.	.06½	.06½	.06½
135-137 a.m.p., per lb.	.07	.07	.07
Petrolatum, in bbls., per lb.:			
Amber	.03⅛	.03⅛	.03⅛
Light amber	.03½	.03½	.03½
Cream	.05½	.05½	.05½
Lily white	.07¾	.07¾	.07¾
Snow white	.08¾	.08¾	.08¾

*Lighterage 5.5c a barrel extra.

NEW YORK CASE EXPORT PRICES

	July 13	July 6	June 29
Gasoline, U. S. Motor, 58-60	.28.90	.29.40	.29.40
Kerosene:			
Standard white Kerosene	.18.90	.19.40	.19.40
Water white kerosene	.20.15	.20.40	.20.40

LOS ANGELES EXPORT PRICES

	July 13	July 6	June 29
Kerosene water white	.05½ .06½	.05½ .06½	.05½ .06½
U. S. Motor Gasoline, 54-56 437 e.p.	.10¾ .11	.10¾ .11	.10¾ .11

CRUDE OIL PRICES

OKLAHOMA, KANSAS AND NORTH TEXAS

***Prairie Oil & Gas Co.**
(Oklahoma, Kansas and North and East Central Texas)
(Effective May 15)

28° to 28.9°	$1.65
29° to 29.9°	1.73
30° to 30.9°	1.81
31° to 31.9°	1.89
32° to 32.9°	1.97
33° to 33.9°	2.05
34° to 34.9°	2.13
35° to 35.9°	2.21
36° to 36.9°	2.29
37° to 37.9°	2.37
38° to 38.9°	2.45
39° to 39.9°	2.53
40° to 40.9°	2.61
41° to 41.9°	2.69
42° to 42.9°	2.77
43° to 43.9°	2.85
44° to 44.9°	2.93
45° to 45.9°	3.01
46° to 46.9°	3.09
47° to 47.9°	3.17
48° to 48.9°	3.25
49° to 49.9°	3.33
50° to 50.9°	3.41
51° to 51.9°	3.49
52° and above	3.57

*Other major purchasers except as noted below.

Champlin Refining Co.
(Garber and Tonkawa)
(Effective May 15)

Schedule based on Prairie Oil & Gas Co. paying 10 cents additional for each grade of crude above 38° gravity.

Humble Oil & Refining Co.
(Effective May 15)
(North and East Central Texas, Ranger, Mexia, Powell, Richland, Wortham, Currie, Moran, Big Lake, Nacona and Lytton Springs)

Same prices as Prairie Oil & Gas Co. schedule. Postings below 28° gravity 8 cents less for each degree, effective June 21.

Magnolia Petroleum Co.
(Effective May 15)
(Oklahoma, Kansas and North and East Central Texas, except Corsicana heavy, and Lytton Springs of South Central Texas)

Below 28°	$1.30
Other grades same as Prairie Oil & Gas Co.	
Iatan	$1.15
Corsicana heavy	1.25
Panola County:	
30° to 34.9°	$1.95
35° to 37.9°	2.10
38° and above	2.25

Texhoma Oil & Refining Co.
(Wichita Falls, Tex., District)
(Effective May 16)

Below 32°	$1.94
32° to 32.9°	2.02
33° to 33.9°	2.10
34° to 34.9°	2.18
35° to 35.9°	2.26
36° to 36.9°	2.34
37° to 37.9°	2.42
38° to 38.9°	2.50
39° to 39.9°	2.60
40° to 40.9°	2.66
41° to 41.9°	2.74
42° to 42.9°	2.82
43° to 43.9°	2.90
44° and above	2.98

TEXAS PANHANDLE

Kay County Gas Co.
Magnolia Petroleum Co.
(Effective May 15)

28° to 28.9°	$1.35
29° to 29.9°	1.40
30° to 30.9°	1.45
31° to 31.9°	1.50
32° to 32.9°	1.55
33° to 33.9°	1.60
34° to 34.9°	1.65
35° to 35.9°	1.70
36° to 36.9°	1.75
37° to 37.9°	1.80
38° to 38.9°	1.85
39° and above	1.90

Humble Oil & Refining Co.
(Effective June 21)

39° to 39.9°	$1.90
40° to 40.9°	1.95
41° to 41.9°	2.00
42° to 42.9°	2.05
43° to 43.9°	2.10
44° and above	2.15

Grades below 39° gravity same as posted by Magnolia Petroleum Co. and Kay County Gas Co.

GULF COAST

***Humble Oil & Refining Co.**
(Effective May 15)

Grade A	$1.60
Grade B—	
Below 25°	1.50
25° to 25.9°	1.55
26° to 26.9°	1.60
27° to 27.9°	1.65
28° to 28.9°	1.70
29° to 29.9°	1.75
30° to 30.9°	1.80
31° to 31.9°	1.85
32° to 32.9°	1.90
33° to 33.9°	1.95
34° to 34.9°	2.00
35° and above	2.05
Boling (December 26)	1.50
High Island (Sun Oil Co.) (Apr. 30)	1.40

The Texas Company
(Effective June 8)

Grade A	$1.60
Grade B	1.50
†Light crude—	
35° to 35.9°	2.05
36° to 36.9°	2.10
37° to 37.9°	2.15
38° to 38.9°	2.20
39° to 39.9°	2.25
40° and above	2.30

*The Sun Pipe Line Co.'s postings same as Humble Oil & Refining Co.'s.
†The Texas Company's postings on light crude under 35° gravity are same as Humble Oil & Refining Co.'s grades and prices for Grade B crude.

SOUTH CENTRAL AND SOUTHWEST TEXAS

***Magnolia Petroleum Co.**

Luling (contract) (Eff. May 18)	$1.30
Mirando (Webb, Jim Hogg and Zapata Counties) (May 15)	1.25
Rockdale-Minerva (Milam County)	1.25
Thrall	1.00
Calliham (Live Oak and McMullen Counties) (May 15)	1.75
§Lockhart (Lytton Springs)	
Somerset (Grayburg Pipe Line Co.): (Effective May 17)	
28° to 28.9°	1.25
29° to 29.9°	1.35
30° to 30.9°	1.71
31° to 31.9°	1.89
32° to 32.9°	1.97
33° to 33.9°	2.05
34° to 34.9°	2.13
35° to 35.9°	2.20
36° to 36.9°	2.29
37° to 37.9°	2.37
38° and above	2.45

*Texpata Pipe Line Co. and Humble Pipe Line Co. also post in Mirando Field paying same prices as Magnolia Petroleum Co.

§Lockhart prices same as for North and East Central Texas. Lockhart posted by Magnolia Petroleum Co. and Humble Oil & Refining Co.

ARKANSAS AND NORTH LOUISIANA

Standard Oil Co. of Louisiana
(Effective May 18)

Caddo below 32°	$2.10
32° to 34.9°	2.25
35° to 37.9°	2.35
38° and above	2.45
Homer below 31°	1.85
31° to 32.9°	2.00
33° to 34.9°	2.10
35° and above	2.20
Haynesville below 33°	2.00
33° and above	2.10
El Dorado below 33°	2.00
33° to 34.9°	2.10
35° to 36.9°	2.20
37° and above	2.30
Bull Bayou, 32° to 34.9°	1.95
35° to 37.9°	2.10
38° and above	2.25
Cotton Valley	1.20
DeSoto	2.30
Crichton	2.10
Bellevue	1.50
Smackover, below 24°	1.10
24° to 24.9°	1.35
25° to 25.9°	1.40
26° to 26.9°	1.45
27° and above	1.50
*Stephens, Ark., below 26°	1.45
26° and above	1.65
†Calion (East El Dorado) (Feb. 1)	.95
§Urania (May 26)	1.25

The Texas Company

Caddo:	
Below 26°	$1.40
26° to 28.9°	1.55
29° to 31.9°	1.70
32° to 34.9°	2.25

Other grades same as Standard Oil Co. of Indiana.

Other companies posting in these fields are: Gulf Pipe Line Co.; Atlantic Oil Producing Co. in Homer, Haynesville, El Dorado and Smackover; The Texas Company in Caddo, Bull Bayou, DeSoto, Crichton and Smackover.

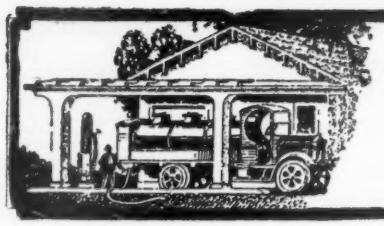
*Posted by the Atlantic Oil Producing Co. †Posted by the Gulf Pipe Line Co. §Posted by the Louisiana Oil Refining Corp.

ROCKY MOUNTAIN STATES

Ohio Oil Co.—Midwest Refining Co.
(Effective May 17)

Rock Creek (Wyo.)	$2.25
Salt Creek—	
29° to 29.9°	1.73
30° to 30.9°	1.81
31° to 31.9°	1.89
32° to 32.9°	1.97
33° to 33.9°	2.05
34° to 34.9°	2.13
35° to 35.9°	2.21
36° to 36.9°	2.29
37° and above	2.37

(Continued on Page 136)



TANK WAGON MARKETS

Tankwagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns, July 13.

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)
Main Service Station Price

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Chicago Dist.—				
†Less than 100 gals.	19.0	21.0	...	13.5

Tank wagon prices on April 19, 1922; g. up 1¼c; May 8, up 1c; June 27, g. and k. up 1c; July 19, g. down 2c, k. down 1c; Oct. 10, g. down 2c; Oct. 21, g. down 1c; Feb. 5, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1½c; Nov. 10, g. down 1.4c; Dec. 20, g. up 2c; Jan. 12, 1924, g. up 2c; k. up 1c; Feb. 5, g. up 2c, k. 1c; July 18, g. down 1c; July 30, g. and k. down 1c; Sept. 12, g. down 2c; Jan. 23, 1925, g. up 1c; Jan. 26, g. up 1c; Jan. 31, g. up 1c; Feb. 12, g. up 2c, k. up 1c; April 19, g. down 1c; July 14, g. up 1c; Aug. 26, g. down 2c, k. down 1c; Sept. 1 g. down 1c; Feb. 4, 1926, g. up 1c; k. up 1c; April 16, 1926, k. up 1c; April 24, 1926, k. up ½c; April 29, 1926, g. up 1c, k. up ½c; May 6, 1926, k. up ½c May 17, g. and k. up 1c July 1, k. down 1c; July 3, k. down 1c.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Decatur, Ill.	19.2	21 2	...	14 0
E. St. Louis	18 1	20 35	...	13 1
Joliet	19 4	21 4	...	14 2
Peoria	19 2	21 2	...	14.0
Quincy	19 2	21 2	...	13 8
Davenport, Ia.	21 5	23 5	2 0	14 4
Des Moines	21 5	23.5	2 0	14 4
Keokuk	21.5	23 5	2 0	14 4
Sioux City	21 0	23 0	2 0	14 0
Duluth, Minn.	22 5	24.5	2 0	15 1
Minneapolis	22 2	24 2	2.0	15 1
La Cross, Wis.	22.2	24 2	2 0	14 9
Milwaukee	21 1	23.1	2 0	14 8
Madison	21 3	23 3	2 0	14 0
Detroit, Mich.	21 8	23 8	2.0	14 7
Grand Rapids	21 7	23 7	2 0	14 6
Saginaw	21.9	23 9	2 0	15.8
Evansville, Ind.	22 0	24 0	3 0	14 0
Ft. Wayne	22.4	24 4	3 0	14 4
Indianapolis	22 2	24 2	3.0	14.2
South Bend	22 4	24 4	3 0	14 4
Fargo, N. D.	22 9	24 9	1 0	17 1
Huron, S. D.	23 5	25 5	3.0	15.6
Sioux Falls	22 0	24 0	3 0	15 1
*K. C., Mo.	21 9	23 9	3.0	12 8
*Springfield	21 8	23 8	3 0	12.7
*St. Louis	20.6	22 9	2 5	13 5
*St. Joseph	21 0	23 0	2 5	13 4
‡Wichita, Kan.	19.8	21 8	2 0	13 3
Bartlesville, Ok.	20.8	22.8	3.0	13.3

*State tax is 2c. Remainder is city tax.
†Quantity price on more than 100 gallons, 18.0.
‡At all Kansas points a discount of 1 cent a gallon is allowed from the tank wagon postings on dumps of 50 gallons or more.

The following monthly rebate system is effective on tankwagon schedules throughout the territory of Standard Oil Co. of Indiana: Over 750 gallons, ½c; over 2,000 gallons, ¾c; over 3,000 gallons 1c; over 6,000 gallons, 1½c; over 10,000 gallons, 2c. If quantity bought during the year is equal to 12 times the monthly agreed purchases the discount will be paid or credited on the entire quantity less monthly payments. Service station customers will receive discount of 1 cent a gallon on purchases amounting to 200 gallons a month or 2,400 gallons a year; and 2 cents a gallon on 600 gallons a month or 7,200 gallons a year.

SOUTHWESTERN DISTRICT
***Magnolia Petroleum Co.**

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Dallas, Tex.	†21.0	21.0	1.0	14.0
Fort Worth	†21.0	21.0	1.0	14.0
Houston	†21.0	21.0	1.0	14.0
San Antonio	†21.0	21.0	1.0	14.0
El Paso	†22.0	22.0	1.0	15.0
Texarkana	†20.0	20.0	1.0	14.0
Muskogee, Ok.	19 0	22 0	3 0	12 0
Okla. City	17 0	20 0	3 0	12.0
Tulsa	19 0	22 0	3 0	12 0
Little Rock	21.0	24.0	3.0	15.5
Ft. Smith, Ark.	21.0	24.0	3.0	15.5

*The following is the schedule of discounts on quantity gasoline sales adopted by the Magnolia Petroleum Co. in Oklahoma: Over 750 gallons a month, ½c; over 2,000 gallons, ¾c; over 3,000 gallons 1c; over 4,500 gallons, 1¼c; over 6,000 gallons, 1½c; over 8,000 gallons, 1¾c; over 10,000 gallons, 2c. If the quantity bought during the year is 12 times the monthly agreed purchases, the discount will be paid or credited on the entire quantity for the year less any monthly purchases.

The schedule on service station deliveries is: Over 200 gallons a month, 1c; over 300 gallons a month, 1¼c; over 400 gallons, 1½c; over 500 gallons, 1¾c; over 600 gallons, 2c. The same rule applies for annual purchases as in the tankwagon discounts.

†Magnolia maintains only a retail schedule in Texas with dealers and large consumers allowed a flat 3-cent discount.

STANDARD FURNACE OIL
(Standard Oil Co. of Indiana)

1 to 149 gallons	11.0
50 to 399 gallons	10.0
400 to 849 gallons	9.5
850 or more gallons	9.0

CENTRAL SOUTH DISTRICT
Standard Oil Co. (Louisiana)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
*New Orleans	20.5	23.5	3.0	16.0
Alexandria	20.0	23.0	2.0	16.0
Baton Rouge	19.0	22.0	2.0	14.5
LaFayette	20.0	23.0	2.0	15.5
Lake Charles	20.5	23.5	2.0	16.0
Shreveport, La.	19 0	22.0	2.0	15.0
Memphis, Tenn.	21.5	24.5	3 0	17.0
Chattanooga	23.5	26.5	3.0	17.5
Knoxville	23.5	26.5	3.0	18.0
Nashville	22.5	25 5	3.0	18.0
Bristol	24 0	27.0	3.0	17.5
Little Rock Ark	22.0	25.0	4.0	16.0

*Tax of 3c includes city tax of 1c.

SOUTHERN DISTRICT
Standard Oil Co. (Kentucky)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Atlanta, Ga.	25 0	28 0	3 5	19 0
Augusta	25 0	28 0	3 5	19.0
Macon	25 0	28.0	3 5	19 0
Savannah	23 0	25 0	3 5	17 0
Birm'ghm, Ala.	22 0	25 0	2.0	18 5
Mobile	21 0	24 0	2 0	17.0
*Montgomery	23 0	26 0	3 0	19 5
Clarksdale, Miss	23 0	26.0	4 0	16.5
Jackson	23 0	26 0	4 0	16.5
Natchez	22.5	25 5	4 0	16.0
Vicksburg	22 5	25 5	4 0	16 0
Jack'ville, Fla.	23 0	26 0	4 0	17.0
Miami	25 0	28 0	4 0	18 5
Pensacola	23 0	26 0	4 0	17 5
Tampa	23 0	26 0	4 0	17 0
Covington	24 0	27 0	5.0	18 0
Louisville	25 0	28 0	5 0	17 0
Lexington, Ky.	25 0	28 0	5.0	18.0

*In addition to the state tax of 2c on gasoline, Montgomery has city tax of 1c on gasoline and ½c on kerosene. Prices in Georgia include ½c inspection fee on gasoline and kerosene; in Florida, an inspection fee of 0.125c; in Alabama, an inspection fee of ½c on kerosene only.

ROCKY MOUNTAIN DISTRICT
Continental Oil Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Denver, Colo.	22 0	22 0	2.0	17.0
Pueblo	22.0	24 0	2.0	17 0
Casper, Wyo.	22 5	24 5	2 5	15 5
Cheyenne	23 5	25.5	2.5	17 0
Butte, Mont.	24 0	24 0	2.0	19 5
Helena	26 0	28 0	2 0	19 5
Salt Lake, Utah	26 0	28 0	3.5	18 5
Boise, Idaho	27.0	29.0	3.0	20 5
Albuquerque, N. Mex.	29.5	29 5	3.0	19.0

ATLANTIC COAST DISTRICT
Standard Oil Co. (New Jersey)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Atlantic City	19.0	....	...	16 0
Newark, N. J.	19.0	21.0	...	16.0
Anapolis, Md.	21.0	....	2.0	16.0
Baltimore	21.0	24.0	2.0	16.0
Cumberland	21.0	24.0	2.0	16.0
Washington	21.0	24.0	2.0	16.0
Danville, Va.	23.5	....	4.5	16.0
Norfolk	23.5	26.5	4.5	16.0
Petersburg	23.5	26.5	4.5	16.0
Roanoke	23.5	26.5	4.5	16.0
Richmond	23.5	26.5	4.5	16.0
Charleston, W. Va.	22.5	25.5	3.5	16.0
Keyser	22.5	....	3.5	16.0
Parkersburg	22.5	22.5	3.5	16.0
Wheeling	22.5	25.5	3.5	16.0
Charlotte, N. C.	23.5	26.5	4.0	16.0
Hickory	23.5	....	4.5	16.0
Mt. Airy	23.5	26.5	4.0	16.0
Salisbury	23.5	26.5	4.0	16.0
Charleston, S.C.	24.5	27.5	5.0	16.0
Columbia	24.5	27.5	5.0	16.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT
Standard Oil Co. (New York)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Albany, N. Y.	21.0	....	...	17.0
*New York	21.0	....	...	17.0
Buffalo	20.0	....	...	17.0
Rochester	21.0	....	...	15.0
Syracuse	21.0	....	...	17.0
Boston, Mass.	21.0	....	...	17.0
Augusta, Me.	24.0	....	3.0	17.0
Manchester, N. H.	23.0	....	2.0	17.0
Burlington, Vt.	23.0	....	2.0	17.0

*Price in steel barrels.
Note: Standard Oil Co. of New York does not generally quote service station price in its territory. In most cases the service station price is 2 or 3 cents higher than tankwagon price.

PACIFIC COAST DISTRICT
Standard Oil Co. (California)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
San Francisco	18.0	22.0	2.0	15.5
Los Angeles	16.5	20.5	2.0	15.5
Fresno	18.5	22.5	2.0	17.5
Reno, Nev.	23.5	27.5	4.0	19.0
Portland, Ore.	19.0	23.0	3.0	16.5
Seattle, Wash.	18.0	22.0	2.0	16.5
Spokane	22.0	26.0	2.0	20.5
Tacoma	18.0	22.0	2.0	16.5
Phoenix, Ariz.	25.0	28.0	3.0	21.5

CALIFORNIA
***Standard Oil Co.-Union Oil Co.**
(Effective March 11)

Gravity—	Long Beach Huntington Beach Richfield Brea-Olinda Rosecrans-Dom'gues Torrance-Inglewood	Whittier La Habra Montebello	Kern River Newhall McKittrick Midway-Sunset Elk Hills Lost Hills Belridge	Coyote	Santa Fe Springs	Coalinga	Wheeler Ridge	Santa Maria Ventura Salt Lake
14°	.85	.85	.75	.85	....	.75	.75	.85
15°	.87	.85	.75	.85	....	.75	.75	.85
16°	.90	.85	.75	.85	....	.75	.75	.85
17°	.94	.85	.75	.85	....	.75	.75	.85
18°	.98	.86	.75	.86	....	.75	.75	.85
19°	1.04	.87	.75	.87	....	.75	.75	.85
20°	1.10	.89	.82	.90	.89	.79	.78	.90
21°	1.16	.91	.90	.93	.91	.86	.81	.97
22°	1.22	.94	1.00	1.06	.94	.93	.85	1.04
23°	1.28	.97	1.11	1.14	.97	1.00	.89	1.11
24°	1.34	1.01	1.22	1.22	1.02	1.07	.93	1.18
25°	1.40	1.05	1.33	1.30	1.08	1.14	.97	1.25
26°	1.46	1.09	1.44	1.38	1.16	1.21	1.01	1.32
27°	1.52	1.13	1.55	1.46	1.24	1.28	1.05	1.39
28°	1.58	1.17	1.66	1.54	1.32	1.35	....	1.46
29°	1.64	1.21	1.77	1.62	1.40	1.42	....	1.53
30°	1.70	1.25	1.88	1.70	1.48	1.49	....	1.60
31°	1.76	....	1.99	....	1.60	1.56	....	1.67
32°	1.84	....	2.10	....	1.72	1.63	....	1.73
33°	1.92	....	2.21	....	1.84	1.70	....	1.79
34°	2.00	....	2.32	....	1.96	1.77	....	1.85
35°	2.08	....	....	....	2.08	1.84	....	1.92
36°	2.16	....	....	....	2.16	....	....	....
37°	2.24	....	....	....	2.24	....	....	....
38°	2.34	....	....	....	2.34	....	....	....
39°	2.44	....	....	....	2.44	....	....	....
40°	2.54	....	....	....	....	....	....	....
41°	2.64	....	....	....	....	....	....	....
42°	2.74	....	....	....	....	....	....	....

*Column 2—Long Beach and Huntington Beach crudes, 14 to 32 degrees, inclusive; Richfield and Brea-Olinda, 14 to 30 degrees; Torrance and Inglewood, 14 to 28; Dominguez, 24 to 42 degrees. Rosecrans crude ranges from 14 to 42 degrees, but only Union Oil Co. posts below 24 degrees.
Column 3—Whittier and La Habra crudes, 14 to 22 degrees; Montebello, 14 to 30 degrees.
Column 4—Kern River, Newhall and McKittrick, 14 to 19 degrees; Midway-Sunset and Elk Hills, 14 to 33 degrees; Lost Hills and Belridge, 14 to 34 degrees.
Column 6—Santa Fe Springs. Only Union Oil Co. posts below 24 degrees.
Column 9—Salt Lake, 14 to 19 degrees, inclusive; Santa Maria, 14 to 30 degrees; Ventura, 14 to 35 degrees. Posted only by Union Oil Co.

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND
Atlantic Refining Co.

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
*Pittsburgh, Pa.	20.0	25.0	...	17.0
*Philadelphia	20.0	25.0	...	17.0
*Scranton	20.0	25.0	...	17.0
*Allentown	20.0	25.0	...	17.0
Altoona	20.0	25.0	...	17.0
*Erie	20 0	25.0	...	17.0
Dover, Del.	22.0	25.0	2.0	17.0
Wilmington	22.0	25.0	2.0	17.0
Springf'd, Mass.	21.0	23.0	...	17.0
Worcester	21.0	24.0	...	17.0
Boston	21.0	24.0	...	17.0
Providence, R.I.	22.0	24.0	1.0	17.0
Hartford, Conn.	23.0	26 0	2.0	16.0
New Haven	23.0	26.0	2.0	17.0

*Pennsylvania tax of 2c is collected by the dealer and paid by him direct to the State.

NEBRASKA
Standard Oil Co. (Nebraska)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
Omaha	21 25	23 25	2 0	14 0
McCook	22.75	24 75	2 0	15 5
Norfolk	21 75	23 75	2 0	14 5
N. Platte	22 75	24 75	2 0	15 25
Scottsbluff	22 25	24 25	2.0	14.75

OHIO
Standard Oil Co. (Ohio)

	Gasoline: Tank wagon	Gasoline: Service station	Gasoline: Incids tax of	Kero. Tank wagon
All Ohio points	22.0	24.0	2.0	17.0

TANKWAGON PRICE CHANGES

July 10—Continental Oil Co. reduced kerosene 1 cent in Colorado, Wyoming, Montana and New Mexico, and ½ cent in Utah and Idaho except at a few points where there were no changes.

CRUDE PRICE CHANGES

July 8—Joseph Seep Purchasing Agency reduced all Pennsylvania grades and Gaines crudes 25 cents and Keister crude 15 cents.

July 9—Louisiana Oil Refining Corp. advanced Urania, La., crude 10 cents.

OKLAHOMA NATURAL SALE UNANIMOUSLY CONFIRMED

At a stockholders' meeting of the Oklahoma Natural Gas Co., held in the company's offices in Tulsa July 9, the proposal to sell that corporation to an unnamed purchaser was unanimously confirmed. The sale is being handled through Pope, Richardson & Co., bankers of New York, and while no mention was made regarding the identity of the new owner of the Oklahoma Natural, it has been rumored that the same group of individuals who purchased the Kingwood Pipe Line Co., of Okmulgee, Okla., are the buyers. These individuals are reported to be very closely associated with the present directors of the Oklahoma Natural. It is believed that the sale will cause practically no changes in the personnel of the Tulsa office.

Under the proposed transaction, the purchaser is said to contemplate the formation of a new company to operate the properties of the Oklahoma Natural. A circular mailed to the stockholders of the Oklahoma Natural states that the public utility company will receive for its assets and properties, the sum of $7,870,000 cash, $12,500,000 of a series of first mortgage bonds, and 26,000 shares of the common stock of the new company. Of the cash received in the transaction, $1,780,000 will be used to liquidate the indebtedness of the company. Under the plan the stockholders are to participate in the earnings of the company from January 1, 1926 to date, but not to exceed 8 per cent of the par value of their stock.

It is said the new corporation intends to issue 6 per cent first mortgage bonds to the extent of $15,000,000.

The new corporation proposes to provide the sum of $1,000,000 cash for the purchase of the Kingwood Pipe Line Co., which owns and operates many gas properties in the country around Okmulgee, Okla., and which has its own system of gas distributing lines.

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Geology of Southeastern New Mexico

No Thinning or Thickening of Formations and the Horizons Hold Constant Intervals Over Long Distances

By Arthur Rich

The Artesia Field of southeastern New Mexico is producing from the Permian, as are also the Big Lake and Amarillo, Tex., fields. The Amarillo Field is reported to be producing its oil from sea level, to not follow any particular horizon. The Big Lake Field is producing from Oolitic limestone which lies below the first salt basin and is probably much higher in the geological column than the horizon in which the production in the Artesia Field is found.

The upper 500 to 700 feet in the Artesia Field is composed of red beds and sands with interbedded gypsum and thin layers of lime. This formation is known as the Pecos red bed and has, lying unconformably on same in places, remnants of the basal Triassic, Santa Rosa sandstone, composed of dark red coarse grained sand and pebbles. There is also some trace of remnants of the Russler, which formation is best seen in the Russler Hills of Texas, its type locality.

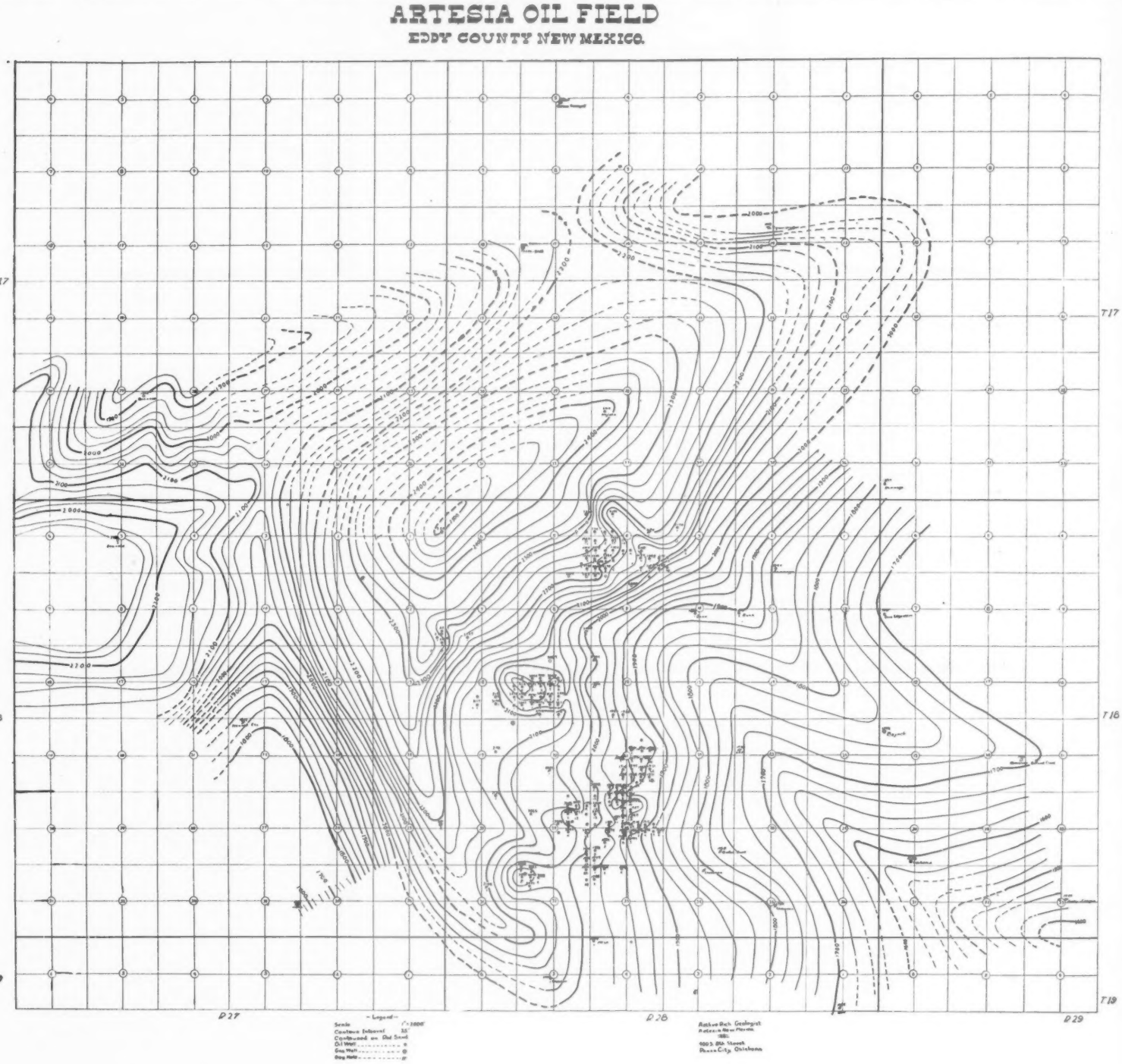
Below the Pecos red beds down to about 1,600 feet, the strata are composed of gypsum, anhydrite (logged by many drillers as lime), and interbedded sands and red beds.

These formations are locally known as the upper Castile. At this horizon which, in the producing field, is about 1,600 feet below the surface, varying with structural conditions and surface elevations, is found a hard, sharp grained red sandstone, known as the red sand. This red sand is found in practically every well drilled in southeastern New Mexico and is used by most geologists as a marker in subsurface correlation. The next 450 feet is also composed of anhydrite, gypsum and some interbedded sand and red rock and marks the base of the so-called Castile and the top of San Andres limestone. At this horizon or 450 feet below the red sand is found the first paying production of the field.

The San Andres Formation

The San Andres, composed mostly of limestone and dolomite, is known to be some 2,000 feet in thickness at its outcrop to the west. The upper portion of this formation has thin beds of green and black shale and interbedded sands and sandy limestone in which the production is found. The first paying production as stated above comes about 450 feet below the red sand in a gray sand or sandy lime. The second pay is found about 600 feet below the red sand, the third at about 900 feet below the red sand and the fourth at approximately 1,050 feet below the red sand.

The upper or 2,000-foot pay is known as the Maljamar pay, as the first big wells found in that sand were on the Maljamar lease in the northwest quarter of Section 28, Township 18 south, Range 28 east, Eddy County, New Mexico. The second or 2,150-foot pay is known as the Danciger pay, as it was first found in the Danciger-Beeson No. 1 in Section 18-18-28. The third pay is known as the New States. It was first found by the New States Oil Co. in their No. 1, in the southwest corner of Section 4-18-28.



The fourth pay is known as the Toomey-Allen, as it was first discovered in the Ohio Oil Co.-Toomey-Allen No. 6, in the northeast corner of the southeast quarter of Section 28-18-28.

Formations Run Regularly

The writer has made up graphic logs of all the wells drilled in southeastern New Mexico and finds from the correlation of same that there is practically no thinning or thickening of the formations and that the producing horizons hold constant intervals over long distances. For instance the Eppenauer well drilled in Section 15, Township 19 south, Range 25 east, Eddy County; the Illinois Production Co. well, known as the Dayton well, drilled in Section 9-18-26, Eddy County; the Artesia Producing Field wells, drilled in Township 18, Range 28, and the Majamar well drilled in Section 21, Township 17, Range 32 east, Lea County, New Mexico, hold a constant interval as to the red sand and the producing horizons. The formations show no more thickening or thinning than offsets in a producing field.

On the east side of the Pecos River many thin-bedded limstone ledges holding constant intervals as to each other make possible a satisfactory geological survey. Checking these surveys made on the outcropping ledges with the subsurface as shown by the correlation of the drilled and drilling wells we find that the structural folding increases with depth.

On the west side of the Pecos River many water wells have been drilled deep enough into the lower formations to be used in subsurface correlation. From these the structural conditions are determined. Farther west the outcropping limestone ledges make geological surveys very satisfactory.

Beginning about 40 miles west of the Pecos River at Artesia, there is a number of parallel faults and folds running in a northeast and southwest direction. Duncan Dome is west of the first big fault. Subsurface correlation in an east-west section of wells drilled on both the east and west side of the Pecos River has not shown any evidence of faulting paralleling the Pecos River.

The Wheat well drilled north of Pecos, Tex., is producing from the Delaware Mountain formation, which formation is composed mostly of black limes, sands and shales, and so far as the writer has correlated has not been reached in the Artesia producing field.

Many new pools with much bigger wells than have been found, undoubtedly await those who take advantage of the structural conditions that show promise in southeastern New Mexico.

FINISH MARLAND EXPANSION PROGRAM

(Continued from Page 30)

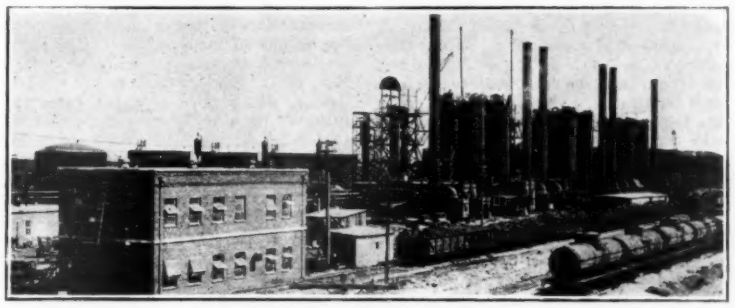
The vapor lines leading from these units are connected to three Gray towers of 18-ton capacity for treating the gasoline in the vapor phase. This is the fourth installation of the Gray towers in the Mid-Continent Field. With this arrangement the vapor lines connect to a header by means of which the vapors pass to any one of three towers. One tower will handle the output of one cracking unit. The third tower is a stand-by which is used while one of the other two is being recharged with fullers earth, the treating medium of the tower.

By this method a gasoline meeting U. S. Motor gasoline specifications is obtained in one uninterrupted cycle of operation. All that is required to obtain the finished product is a slight sweetening treatment. The combination of the Cross and Gray equipment is similar to that described in the December 10, 1925 issue of The Oil and Gas Journal at the Barnsdall, Okla. refinery of the Barnsdall Refining Co. the first to be made in the Mid-Continent Field.

Advantage of Gray Towers

The main advantage of this combination as previously indicated, is that it gives a finished product in one operation and does away with all rerunning. Using the clay the treating costs are also lower than with the usual acid treating methods. Finally the clay treatment has been found to give a more stable product of greater antiknock value due to the fact that the desirable olefin series found in the cracked product are not absorbed as is the case with acid treatment.

The Cross units are still in the experimental stage so far as operation is concerned and for that reason representative yields are not available. The charging stock is a gas oil secured in the skimming operation. Based on operations to date the units will give a yield of 30 to 35 per cent endpoint gasoline with 50 to 55 per cent recycle stock. The fuel oil bottoms, which are about 10 per cent of the charge, are low in sediment content and can be used as fuel oil. The efficiency of the fractionating equipment is indicated in the fact that there is a difference of between 50 and 100 degrees between the end point of the finished gasoline and the initial of the recycle stock.



Six Dubbs units at the Marland refinery. First installations to be made without the high towers. Extra large reaction chambers also shown.

Dubbs Units

So many changes have been made in the six Dubbs units that a visitor viewing the installation either from a distance or close up would probably not recognize the familiar process of the Universal Oil Products Co. Four of the units are now in operation and the remaining two are practically completed.

The Dubbs cracking facilities are arranged in batteries of four units and two units. The latter is built so that two additional units can later be installed if the management wishes. Each battery has its own receiving house with all the control instruments necessary for the operation of four units.

Between the two control houses is a common pump house. All six units are charged from a single header. Two headers are provided, one handling gas oil and the other fuel oil, depending on the type of the charging stock being used.

An outstanding feature of the pump house is the duplicate steam and electrical equipment which assures a steady flow of the charge to the stills. The pumping is handled by two electrical pumps—one for fuel oil and one for gas oil, with a steam turbine standby. In the event the electrical power fails and the header pressure drops below 250 pounds the steam turbine automatically starts up and takes the pump load. This failure of the electrical power has actually materialized twice since the plant started operating and the automatic shift to the steam power took place in less than one minute.

The stills to which the pumps deliver the charge are approximately twice the capacity of the ordinary Dubbs unit. Each unit has 90 4-inch tubes. In furnace design Dubbs equipment for recirculating the flue gases resulting in a fuel oil cost reduction of 30 per cent has been installed. This equipment in general is similar to other recirculating systems except that in the event that something happens to the blower which determines the circulation, it is not necessary to shut down the unit.

Tower Design

In the arrangement and type of towers a marked departure has been made in Dubbs equipment. It has always been possible in the past to distinguish the Dubbs units at a refinery by the high towers, the top of which is generally a little less than a 100 feet from the ground.

This high tower was necessary because the unit depended on the gravity flow of the reflux from the fractionating tower to the tubes. However, in many installations recently this flow has been speeded up with a hot oil pump between the tower and the tubes.

The Marland management decided, with this pumping arrangement the high towers were no longer necessary and so for the first time this distinctive feature of the Dubbs equipment has been dropped. The towers as shown in the accompanying illustration practically rest on the ground.

Of more interest than the height of the towers is their design. Instead of the usual 3½ by 20 feet towers the Marland towers are 4 feet by 42 feet. Inside the tower instead of baffles the towers are equipped with what is known as the Schnible centrifugal plates.

This tower, which could almost be termed a revolutionary development in the fractionation of petroleum products, operates on the principle of utilizing the velocity of the vapors which gives a centrifugal motion separating the heavier and light ends. Through this tower arrangement, the ascending vapors are also brought in contact with the decending liquid which enters the tower near the top.

Decision to install this type of tower was made after an experimental installation at another plant had indicated that it gave more efficient fractionation than the baffle type. It is the first installation of that type tower in connection with petroleum refining.

The towers as previously explained rest on the ground. The lower 10 feet is used as an oil sump from which the recirculating pump takes suction. This recirculating pump is also something new in hot oil pumping equipment. It is a six stage centrifugal pump which was developed by the Byron-Jackson Pump Co. for the Marland plant. Each pump is directly connected to a Westinghouse steam turbine. The pumps in the brief period they have been in operation have maintained a 200-pound differential between suction and outlet with oil of a temperature range between 750 degrees to 800 degrees Fahrenheit.

Each unit has two reaction chambers 10 feet in diameter and 40 feet high. Each chamber has a coke capacity of 120 tons. These chambers are approximately double the size of the ordinary Dubbs unit and make possible a longer cycle of operation.

Cleaning Reaction Chamber

In connection with the cleaning of these reaction chambers, the crude producing branch of the industry can claim to have made one important contribution to the art of refining. The equipment used in cleaning these chambers of coke after a run was developed by the Hughes Tool Co. of Houston, a widely known manufacturer of oil field equipment.

The Marland installation is the second ever made. The equipment was perfected at the Baytown, Texas refinery of the Humble Oil and Refining Co. in connection with the operation of what is known as the "Tube and Tank" cracking process.

This equipment might be briefly described as an inverted drilling apparatus. In making the installation casing is first set to a depth of 70 feet under each reaction chamber. Inside this casing a 6-inch casing is hung. In this 6-inch casing, rests the drill stem.

In cleaning the chamber of coke it is first cooled with water below the flash point of the coke. Then the lower head is dropped. Drill pipe equipped with a fish tail bit the diameter of the manhead is forced up to position by water pressure. The upward action of the bit as the coke is drilled is maintained by this water pressure. The rotary action is secured by means of a rotating table surrounding the shaft. This is actuated by a steam turbine.

As the bit moves up the coke is dislodged and falls down on rotating table which throws it on a conveyer which conveys it to the plant railway. After the first cut the shaft is lowered, the fish tail bit removed and a head with four projecting arms placed in position. From each of these rams hang heavy chains and at the end of these chains are heavy bronze discs or balls with serrated edges.

Centrifugal force throws the disks to the outside of the chamber where they strike the coke. This momentarily retards the speed of the disks and they fall back until they are again forced back against the coke. This assures a succession of blows which gradually removes the coke. The disk being of bronze assures that no spark will cause an explosion.

While this installation is still more or less experimental at the Marland refinery it is believed that it will reduce the down time. This device was also favored over the other types available by the Marland management because it reduces the hazards to employes.

Another innovation in Dubbs equipment is the use of Venturi meters with all units. These meters measure both the charging stock and the finished product and make possible better operating control than has been obtained in previous installations.

As was the case with the Cross units the Dubbs units have not been in operation long enough to determine what the final yields will be. At the present time gas oil from the skimming plant is being used as a charging stock. It is expected, however, that the units will be used to handle the fuel oil residuum from the skimming plant in a non-residuum operation.

Based on present yields each unit will handle approximately 1,000 barrels daily of gas oil. From this charge approximately 850 barrels of pressure distillate is obtained. In rerunning this pressure distillate a yield of 75 to 80 per cent finished end point gasoline is obtained.

When all the Dubbs units are in operation the Marland refinery will have a capacity sufficient to handle 25,000 barrels daily complete with an additional 5,000 bbls. skimming capacity. With this crude throughput from 16,000 to 19,000 barrels of gasoline will be obtained, depending on the type of crude used. In addition to the gasoline, enough lubricating stock will be obtained to take care of the lub plant. A substantial kerosene yield will also be obtained with sufficient fuel oil at least for plant requirements. Any special naphthas or distillates needed can also be obtained if desired.

Other Features

The foregoing description covers many but not all of the interesting features at the Marland refinery. Although the improvement program centered around the skimming and cracking equipment much that is new is found in other parts of the refinery. The boiler capacity was increased by the installation of four Walsh and Widener boilers giving the plant 6,500 horsepower per hour at 100 per cent rating. Two 1,000-kilowatt turbines of condensing type have been installed capable of bleeding 50,000 pounds of steam per hour from each unit.

The new continuous treating plant has a capacity of 10,000 barrels daily. This does not differ materially from other modern treating equipment found at several Mid-Continent plants except that its capacity is greater. All run down tanks are equipped with the Wiggins floating

roofs to reduce evaporation losses and lessen fire hazard. During the past year a two story brick building was completed within the plant to house the experimental and plant laboratories. The plant management, of which Wayne Rice is superintendent has its offices in this building.

NEW POOL OPENED WEST OF MEXIA, TEX.

(Continued from Page 31)

bine sand and cored 10 feet of it, saturated with oil. This well was drilled through the Woodbine at 3,057 feet, but was not a commercial producer. Water broke in from above and the subsequent efforts to effect a shutoff put the hole in bad condition. It has never been abandoned and the production officials have not yet lost all hope that it may be made a well.

Ray V. Hennen, chief geologist for the Transcontinental Oil Co., after a study of the log of the original dry hole and the test on the Ross farm, worked out a cross section of the subsurface conditions as he believed them to be and located the test on the Rossen farm. He figured that this test was too far west to make it possible to penetrate the entire body of Austin chalk and did not believe over 150 feet of chalk would be found. The bottom of the chalk was encountered just about where he expected it and the Woodbine was topped at 2,836 feet, or 53 feet higher than in No. 1 Ross, and 65 feet higher, sea level measurement.

"Guessing the Trend"

"Moving back the fault" was a popular pastime in the older Mexia fault zone fields and perhaps Mr. Hennen may have to move his back, but just now he figures that there are two safe locations west of No. 1 Rossen before the fault will be reached, and as the nearer the fault the greater the oil, as a rule, the two locations are naturally expected to be richer in crude than the well just completed. To the east he is of the opinion that at least two locations will be good, perhaps three.

Guessing on the width of the field is a much easier job than guessing on the length of it. There is absolutely nothing to show how long the shoestring will be. The length of the pay streak along the fault in the Mexia Field is 7 miles, and the maximum width 1½ miles; at Currie 2 miles in length and 2,800 feet wide; at Powell, 7½ miles long and 4,000 feet wide.

There is a great division of opinion as to the importance of the Transcontinental Oil Co.'s discovery. The upthrow in the Nigger Creek area is the down throw at Mexia, and some geologists are of the opinion that there cannot be the volume of oil in the Woodbine so far west of the main fault as was found in the Powell, Mexia and Wortham Fields, but this is mere speculation. It would be idle to make a guess as to what the Nigger Creek structure may amount to. There is no way of knowing, and time only will tell.

A Revival of Wildcatting

One outcome of the discovery of a producing area west of the Mexia fault, may be a general wildcat campaign all the way up the line, west of the Wortham, Richland and Powell Fields. It had been the general opinion that there was no oil to be found on the west side of the faults. It was believed the drainage there had been complete. The Transcontinental's success in finding oil in large volume less than 4 miles west of the center of the Mexia Field has upset all the old theories and already lease owners in the 25-mile stretch of territory are checking up on the geology of the area covered by their properties. It is now held that there is no reason for doubting there may be other fault pools west of the old pools between Mexia and Corsicana. It will mean a revival of interest in the East Central Texas fields and an increase in wildcatting operations which have languished since the Bazette blowup following the development of Wortham.

Transcontinental's 10 Locations

The Transcontinental Oil Co. has made 10 locations for tests and the Pure Oil Co., which has acreage north of the discovery well, is expected to drill on the Douglas Cogdell and Mrs. Bertha Atkins farms. The Transcontinental will start a test at once on the Cogdell 25-acre lease, just north of the discovery well. The Transcontinental, after the well came in posted an order in Mexia for all the available derrick patterns in the supply houses there.

One Lease Purchase

The only important transaction in leases since the big well came in was the purchase by the Godley Oil Co. of the Bell interests in the Foster-Reiter leases. The Godley Oil Co. is reported to have paid $100,000 in cash and $50.000 in oil for 107 acres of supposedly inside stuff.

Royalty interests are being bought as high as $4,000 per acre. There has been a tremendous play in royalties but most of this occurred closely following the first report that the Transcontinental Oil Co.'s No. 1 Ross had cored an oil sand. The completion of No. 1 Rossen as a 2,800-bbl. well has increased the value of these royalty interests and they are held at a high figure, where the leases appear to be in the play.

SEES OVERSUPPLY OF CRUDE IN 1926

(Continued from Page 32)

character is kept up-to-date on every field and carefully weighed. Projections of decline curves are made for the producing wells. The progress of all wells being drilled is carefully noted and estimates are made of the number of probable completions within the period covered by the forecast. Initial production and decline figures based on the performance of adjoining wells are applied. Weight is given to the action of older fields that have produced under similar conditions.

"3. Fields consisting of one well or of relatively few wells, concerning which there is not sufficient information to determine the areal extent, sand thickness, and drilling program. This is necessarily the most difficult type of pool to forecast. In it lies the inherent weakness of any known system of estimating. However, a study of the history of oil production by 90-day periods shows that the yield from pools of this type is ordinarily a very small proportion of the total production. Several pools of this class are usually included in the estimates, and the errors are often compensating. Geological information and the action of older pools in the district are helpful. Decline curves on the producing wells are useful, especially when compared with those of other wells in the district.

"Production of all of the three classes of pools described is subject to the effect of weather, workovers, shooting, deepening, opening or shutting of wells, water encroachment, changing methods of production, conditions of transportation and storage, and price changes. Detailed scouting information is kept up-to-date on these subjects by fields, and are considered when the estimates are made. The striking influence of drilling and price changes on production are shown on the chart.

Results Obtained

"The composite method has been applied by the authors to the solution of the forecasting problem since January, 1925. With the exception of a few weeks the estimates have been within approximately 1 per cent of production. During the weeks mentioned the error was 5 per cent. It was caused by the second sand of the Smackover Field, which was discovered in February, 1925, and together with the upper sand attained a peak of 445,000 bbls. on May 30, 1925. Only one other pool in the history of the industry has reached a similar peak production. It should be understood that the estimates on which these error figures are calculated were confined to periods ranging from 30 to 90 days. Attempts by the authors to predict for periods of six months by the composite method described have not been successful. The author's estimate of United States production for the 90-day period, ending December 31, 1925, was an average of 2,038,000 bbls. per day.

Recommendations

"The per cent of error cited is not given in a boastful spirit. The writers knew of no other way to present results. It is probable that similar results have been obtained by others. Their principal value from the research viewpoint lies in the encouragement they lend to further effort, and, as refinement of method and improvement in collecting facts proceed, the added confidence which they give to students of the problem who hope to attain a higher degree of accuracy."

MARKET REMAINS FIRM ON OIL SECURITIES

(Continued from Page 125)

partners whose equal interests therein were and still are undivided. "The Lorent interest in this tract," Mr. Leonard states, "was purchased and is owned in fee by our company. The Valenzuela interest is now vested in Ulpiano, Carlos and Elvira Valenzuela, citizens of Colombia, who a few years ago leased their interest in the oil rights there to a certain Silas Wright, which lease has been acquired by Colombia Syndicate.

"The Valenzuelas," he continues, "proceeded to enter into negotiations with the general manager of our company in Colombia, and in 1921 a private instrument was executed outlining the basis for a compromise, and specifying the parcels of land which our company and the Venezuelas were to quitclaim respectively to each other. A definite compromise was not effected, however, for the reason that our board of directors did not look with favor upon the locations of the lots which our company was to receive under the terms of said private agreement."

MEXICAN FIELDS

(Continued from Page 29)

can Fuel Co.'s No. 22 Santa Fe is a dry hole at 2,620 feet. International Petroleum Co.'s Nos. 263 and 272, Lot 5 Cacalilao, are each dry holes at 2,252 and 2,500 feet respectively.

Mordelo Vincent's No. 1 Maza (Tamante) might be classed as a dry hole at 2,266 feet, although it has shown some oil.

Is It a Well?

The most interesting wildcat that is being drilled at this time in Mexican fields is American International Fuel Co.'s No. 31 Los Esteros, which is located in the state of Tamaulipas, north of Tampico proper; and where many dry holes have been drilled by the Mexican Gulf Oil Co. (Mellon interests), which company has a drilling agreement with the first-named company. This No. 30 is reported now in gray lime at 1,492 feet, showing oil and gas. The Gulf people, always conservative, figure it is a small well, or even, possibly, simply an oil and gas blowout. Some other people of authoritative ideas have sent the wise ones up to look it over and they seem to have an idea that it is a real well. A test will show. This is the rainy season and making earthern sumps is no easy task now—so sufficient unto the day is enough thereof. We will wait and see. The many failures in Los Esteros lends color to the Gulf's very conservative position.

At Panuco

The operations in the Panuco Field as the past week ended are as follows: The Corona's deep test in the San Manuel, of the old Panuco Field, is at 3,740 feet, in the Tamasopa. It will be recalled that this is the so-called "deep test" of the Panuco Field. Thus far its interest is academic only. Its depth precludes any hope of economic production. The company's No. 117 Ojital is in the Tamasopa limestone at 2,070 feet; its No. 118 Salvasuchi is in gray lime at 1,685 feet; its No. 119 Delicias has cemented 8-inch in gray lime at 1,260 feet. Cia. Pet. Capuchinas, No. 11, Lot 12 W. Maguabes, is drilling at 1,447 feet; and its No. 4 is spudding. Credito Petroleo S. A., No. 11 Las Piedras is in white lime at 1,886 feet; its No. 12 is in shale at 600 feet. English Oil Co.'s No. 13 Tampascos is in shale at 910 feet. La Espuela Oil Co.'s No. 6 Sobrevilla, (Isleta) has cemented 8-inch at 1,476 feet in gray lime; and has done the same with No. 9 Perforadores at 1,048 feet, in the same formation. International Petroleum Co.'s No. 25 Tamchicuin is in gray lime at 1,555 feet. Mexican Sinclair Petroleum Corp.'s Nos. 29 and 30 Tananturo are: first, in hard gray shale at 1,320 feet; second, in gray lime at 1,735 feet. The company's No. 17-A, Lot 2 Camolote has shut down for orders at 2,120 feet in Tamasopa. Transcontinental Petroleum Co.'s No. 2, Lot 15 Tanchicuin has cemented 10-inch in gray lime at 1,200 feet; its No. 11, Lot 14, is in shale at 900 feet; its No. H-7 Etienne is in shale at 600 feet; its No. 27 Barbarena is in shale at 165 feet; its No. 16 Ojital is in gray lime at 1,120 feet; its No. 4 Buena Vista is in gray lime at 1,600 feet, and its No. 23 Piazzi is in shale at 200 feet. Tampascos Oil Co.'s No. 22 Robles is drilling at 1,610 feet in gray lime; and it is waiting permits for Nos. 20 and 21. Cia. Explotadora de Riquezas Naturale's No. 1 Beuna Vista is reported at 2,100 feet in gray lime.

In Cacalilao and Ebano

In the Ebano district of the northern fields, consider Mexican Petroleum Co., in its Chijol: No. 46 is in white and brown lime at 1,970 feet; No. 55 is in gray lime at 2,160 feet; Nos. 56 and 59 are each in gray lime at 1,650 and 1,590 feet respectively. Its No. 8 Silva is in gray lime at 1,895 feet. In the La Dicha the following obtains: Nos. 112 and 113 are each in gray lime at 1,280 and 1,926 feet respectively. In the Midway No. 50 is in gray shale at 230 feet. There are several tests awaiting permits.

The National Lines' No. 50 Chapacao is in shale at 395 feet. In the Cacalilao sector, La Corona's No. 182 is fishing tools in gray shale at 1,030 feet; and its No. 183 is in lime at 1,100 feet. International Petroleum Co.'s No. 273, Lot 5, is in pink shale at 300 feet. Mexican Sinclair Petroleum Corp.'s No. 129, Lot 2 Cacalilao, is rigged and waiting permit. Transcontinental Petroleum Co., in Lot 4 Cacalilao, has the following: No. 244 is in shale at 150 feet; No. 247 is in lime at 2,055 feet; No. 258 is in the Tamasopa at 2,440 feet; No. 264 is in lime at 2,030 feet; No. 271 is in shale at 50 feet, and No. 60 Paciencia is in shale at 50 feet.

South Fields

In the south fields, drilling operations are best epitomized as follows: The Huasteca Petroleum Co., in Cerro Azul, has locations cleared up for four tests. Drilling operations are as follows: No. 81 is in light gray shale at 1,627 feet; No. 82 is in basalt at 110 feet. Down in Tierra Blanca, the company has the following: No. 65 is in lime at 2,063 feet; No. 72 is in gray and brown lime at 2,105 feet; No. 77 has cemented 10-inch in shells at 1,835 feet, and there are several locations being derricked. Mexican Eagle Oil Co. is drilling its No. 49, Lot 111 Amatlan, in gray shale at 435 feet. Its No. 37 Furbero is in a crystalline rock at 2,186 feet; its No. 9 San Diego is in blue shale at 914 feet. Penn Mex Fuel Co.'s No. 3 La Pita is in the Chicontepec series at 4,480 feet.

Northern Miscellany

In the northern fields, here and there, the following epitomizes the operations of the past week. In Los Esteros, American International Fuel Co.'s No. 31 is in lime shells at 2,148 feet; its No. 42 is in gray lime at 1,247 feet.

In the Corcovado, La Corona Petroleum Co. has cemented 8-inch in the gray lime

TOO LATE TO CLASSIFY

FOR SALE

20 8,000-gallon tank cars, all equipped with steam coils, safety valves, double rivited heads and belly plate; located in Texas and Tulsa. Price $350.00 each. M. E. Gaskill, 801 Kennedy Bldg., Tulsa, Okla.

FOR SALE

60 8,000-gallon tank cars, all equipped with steam coils, safety valves, double riveted heads and belly plate, center anchored, steel underframed, thoroughly overhauled, repainted and A-1 condition; now in service out of Tulsa. A bargain. $750.00 each. M. E. Gaskill, 801 Kennedy Bldg., Tulsa, Okla.

at 1,110 feet in its No. 24, Lot 6; and it is rigging No. 25.

In Hacienda Limon, Cia. Franco Espanola, No. 54 is in lime at 1,504 feet; its No. 58 is in gray lime at 1,550 feet; its No. 60-A is in gray shale at 1,625 feet.

In Topila, Mexican Oil Co. has cemented 8-inch in its No. 7, Lot 19 Tamboyoche, in gray lime at 1,910 feet.

In the Garruche, of the Corcovado, Mexican Sinclair Petroleum Corp.'s No. 4-B, Lot 1, is in gray lime at 1,910 feet.

In the Corcovado-Chapacao, Mexican Gulf Oil Co.'s No. 25-A is in gray lime at 1,385 feet, and its No. 29-A has cemented 8-inch in the same formation at 1,115 feet.

The rains are extant in Mexico now and as a result work is slowing down in the fields. The roads are practically impassable for motor trucks and automobiles, all of which tends to slow down operations.

JAPANESE MAY ESTABLISH AN OIL MONOPOLY

(Continued from Page 29)

ket for about 20,000,000 gallons of gasoline and other light products, over 90,000,000 gallons of illuminating gas and Diesel oils, more than 25,000,000 gallons of lubricating oils and 200,000,000 pounds of solid petroleum products, such as paraffin wax, candles, vaseline, pitch, asphalt.

The imports from foreign countries, principally the United States and the Dutch East Indies, which were valued at over $30,000,000 in 1922, supplied in 1923 about 50 per cent of the demand for refined liquid products such as gasoline, kerosene, lubricating oil, etc., and approximately 35 per cent of the market requirements for paraffin, candles, vaseline and other solids. The balance is supplied by the output of the Japanese refineries, which handle annually about 2,000,000 bbls. of locally produced crude petroleum in addition to a constantly increasing amount of imported crude. The latter totaled about 500,000 bbls. in 1922 and approximately 1,000,000 bbls. in 1923.

The local production and refining is entirely in the hands of Japanese concerns, principally the Nippon Oil Co., while the distribution or marketing of products is shared by this Japanese firm with several American companies and a British-Dutch company.

In 1923, Albert T. Coumbe, Jr., of the petroleum division, Department of Commerce, referred to the United States' exports of petroleum products to Japan and her colonies, as showing a total of 152,000,000 gallons, valued at over $13,000,000.

"It is believed," said Mr. Coumbe, "that this market will continue to be a most important one to American export petroleum, as consumption in Japan continues to grow while production is diminishing."

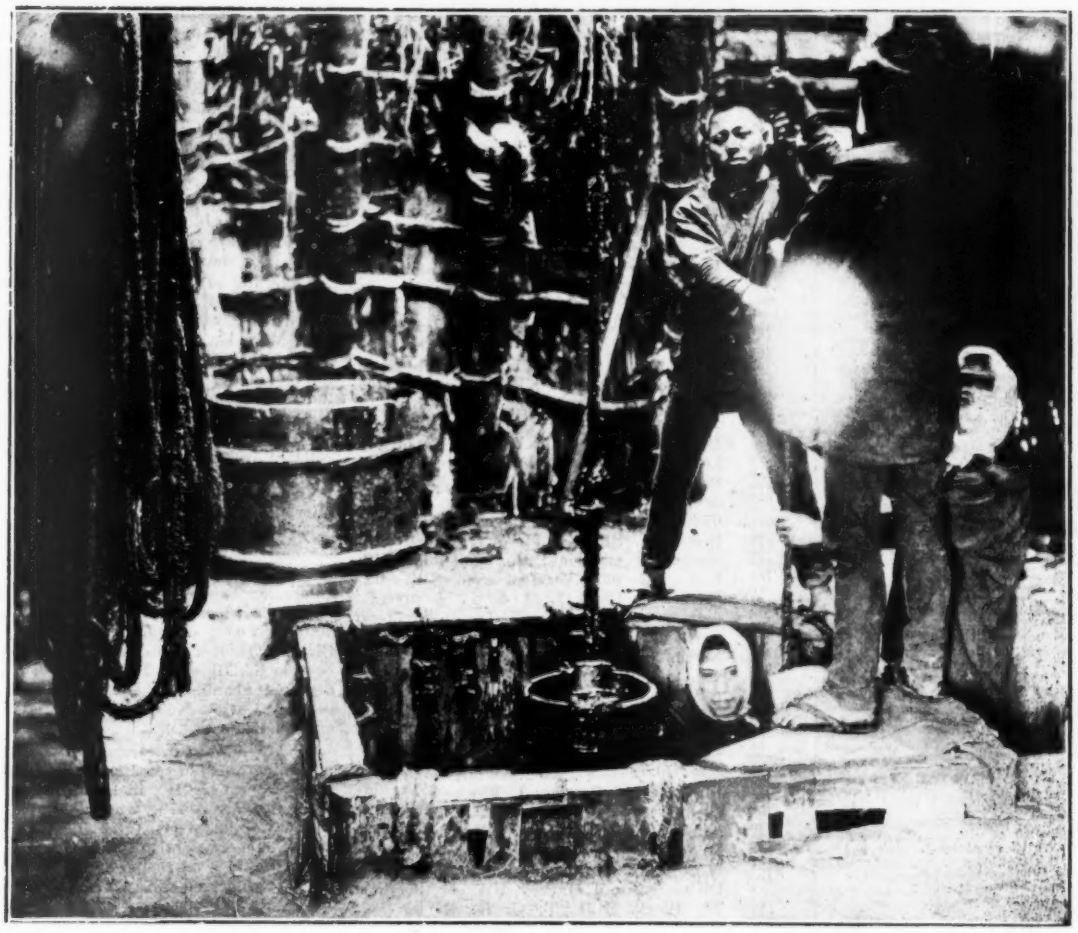
This hopeful view in respect to the future for the oil industry in these islands, is made a question of doubt now that an oil monopoly is contemplated in Japan, because the opportunity for American companies to compete will be limited entirely to its sales to this monopoly without regard to the superiority of any of its products or of its selling methods. On the other hand, it will have the competition of the petroleum products of Borneo and the Dutch East Indies. There is a vast difference between the competition that has existed in the past and the one that will be faced under conditions of monopoly.

TEXAS PANHANDLE

(Continued from Page 38)

feet but was good for only 55 bbls. daily afterward.

The wildcats did not produce anything of a sensational nature. The Marland Oil Co.'s No. 1 Belle Wisdom in Section 35, Block M-23, swabbed a total of 115 bbls. in several days and had succeeded in cleaning out the hole to 2,986 feet, 80 feet off bottom. It was reported shot last week with 330 quarts at 2,970-3,050 feet. Company tools were being installed on this well Monday.



Interior of well house over a hand-dug oil well in the Higashiyama oil district, Japan.

The Douglas Oil Co.'s No. 1 Whittenburg in Section 15, Block X02, which was shot with 320 quarts at 3,029-84 feet, swabbed 63 bbls. Saturday.

The Amerada Petroleum Corp.'s No. 1 Whittenburg "B," SW cor. NW. Section 89, Block Z, G. C. & S. F. Survey, filled up 800 feet with oil in 18 hours at total depth of 3,024 feet. This well had 100,000 feet of gas at 2,880-90 feet, a show of heavy oil at 2,920 feet, a show of oil in lime at 3,006-14 feet and a shale break from 3,014-17 feet. The Gulf Production Co.'s No. 3 E. B. Johnson in Section 65, Block 46, was drilling at 2,819 feet and making 4,000,000 feet of gas.

The Bear Creek Oil Co.'s No. 1 E. E. Watkins, in Section 10, Blocg M-21, T. C. R. R. Survey, was completed after a shot of 240 quarts at 2,911-98 feet, flowing 5 bbls. daily. The Coble Oil Co. and Whittenburg's No. 2 J. A. Whittenburg in Section 12, Block Y, was shot with 210 quarts at 2,910 79 feet and was flowing 100 bbls. Total depth is 2,980 feet; No. 3 was drilling at 2,520 feet. The Derby Oil Co.'s No. 2 Johnson in Tract 8, Mary Whitley Survey, was drilling at 2,500 feet.

The Dixon Creek Oil Co.'s No. 5 Smith in Section 11, Block Y, was spraying 100 bbls. after a 400-quart shot at 2,792-2,890 feet; No. 6, same section, topped the lime pay at 2,792 feet and at 2,918 feet had 1,000 feet of oil in the hole; No. 7, was drilling at 2,748 feet; No. 9, same section, was completed for 100 bbls. flowing and swabbing from total depth of 2,900 feet; No. 13 in Section 14, Block Y, was flowing 10 bbls. from lime at 2,740-85 feet and still drilling; No. 16, in Section 14, Block Y, was drilling at 2,100 feet; No. 17, at 2,840 feet; No. 33, in Section 5, was drilling at 2,750 feet; No. 34, same section, at 2,670 feet; No. 36, at 2,770 feet.

The Echo Oil Co.'s No. 1 Smith in Section 11, Block Y, was fishing tools at 2,650 feet; No. 2 was shot with 210 quarts from 2,845 to 2,901 feet and the 6-inch parted. It was spraying 10 bbls. The Empire Gas & Fuel Co.'s No. 1 Johnson in Section 68, Block 46, H. & T. C. Survey, was pulling big pipe at 2,750 feet; No. 1 Johnson "B" in Section 21, Block Y, was drilling at 2,400 feet and No. 1 J. F. Weatherly in Section 19, Block Y, at 2,965 feet.

The Gibson Oil Corp.'s No. 1 W. L. Kingsland in Section 4, Block Y, was shot with 200 quarts at 2,789-2,860 feet, total depth 2,874 feet and was fishing tools.

Holmes, Currie & McKnight's No. 1 Smith in Section 12, Block Y, swabbed 250 bbls. from lime at 2,728-74 feet and was completed. The J. K. Hughes Development Co.'s No. 3 W. L. Kingsland "A," in Section 6, Block Y, was completed for 250 bbls. flowing after a 90-quart shot placed at 2,916-66 feet; No. 4 was drilling at 2,385 feet; No. 7 at 2,746 feet; No. 6 was completed for 20 bbls. following a shot of 330 quarts at 2,835-75 feet; No. 9 had a show of gas at 2,450 feet; No. 10 set the 8-inch at 1,980 feet and No. 11 was drilling at 2,560 feet.

Dan A. Japhet's No. 1 Smith in Section 11, Block Y, was fishing at 2,863 feet for liner damaged by shot; No. 2 was drilling at 1,800 feet.

The Marland Oil Co. has several wells nearing the pay level and some of them should be coming in within the next week or so. No. 1 Johnson Brothers, in Section 6, Block I, was drilling at 2,715 feet; No. 1 Johnson "A" in Section 20, Block Y, at 2,825 feet; No. 2 at 2,740 feet and No. 3, at 2,400 feet; No. 1 J. F. Weathely "A" in Section 19, Block Y, at 2,519 feet; No. 1 Weatherly "B," same section, at 2,630 feet and several others are nearing or below 2,500 feet.

S. D. and W. W. McIlroy's No. 2 Smith was drilling at 2,914 feet. This is in Section 14, Block Y; No. 3 was shut down for shot at 3,017 feet. McIlroy & Herring's No. 3 Smith, in Section 5, Block Y was drilling at 2,300 feet; No. 4 had 1,000 feet of oil in the hole while drilling at 2,770 feet. The McMan Oil & Gas Co.'s No. 5 Smith, in Section 5, Block Y, was setting 6-inch at 2,704 feet.

J. H. Middleton's No. 1 Smith in Section 15, Block Y, was shut down for orders and spraying 10 bbls. daily from lime at 2,925 feet; No. 2 was also shut down for orders at 2,898 feet.

The Midwest Exploration Co.'s No. 3 Smith in Section 5 was completed for 400 bbls. flowing after a 140-quart shot in lime at 2,781-2,850 feet, total depth 2,859 feet; No. 4 was drilling at 2,647 feet and No. 5 was fishing tools at 2,400 feet.

The Phillips Petroleum Co.'s No. 1 Whittenburg-Mary Huff in Section 12, Block Y, was swabbing 100 bbls. at 2,900 feet but was not completed; No. 3 J. A. Whittenburg in Section 12 was swabbing 10 bbls. at 2,970 feet but was to be drilled deeper; No. 1 Whittenburg-Patton in the Mary Whitley Survey was underreaming the 5-inch casing at 2,976 feet.

The Phillips Petroleum Co. and Coble Oil Co.'s No. 4 J. A. Whittenburg in Section 13, Block Y, swabbed 10 bbls. at 2,960 feet; No. 5 was drilling at 2,835 feet; No. 7 swabbed 10 bbls. at 2,942 feet; No. 8 was drilling at 2,965 feet; No. 9 at 2,850 feet; No. 10 at 2,440 feet; No. 11 at 2,200 feet; No. 12 at 2,570 feet, and No. 13 at 2,500 feet. The nineteenth well is drilling on this lease.

The Phillips Petroleum Co. and Pulaski's No. 2 Johnson in Tract 7, Montgomery subdivision of M. Whitley Survey, was drilling at 2,774 feet. The Relief Oil Corp.'s No. 3 Smith in Section 11, Block Y, was drilling at 2,696 feet with 1,400 feet of oil in the hole from lime at 2,675-96 feet.

The Roxana Petroleum Corp.'s No. 1 Smith "B" in Section 11, Block Y, was flowing 200 bbls. daily, 50 per cent water from 2,855 feet and was completed; No. 5 was drilling at 2,900 feet with a show

ing of oil. The other Roxana completions were mentioned above.

Amarillo Production

The daily average production of the Amarillo district for week ending July 10, is as follows:

Hutchinson County

Company—	Wells	Prod.
Amerada Pet. Corp.	1	65
Amerada Pet. Corp.	1	45
American Ref. Co.	1	100
Apex Oil Co.	1	250
Badger Oil Co.	1	25
R. C. Barnum	1	0
Canadian River Oil Co.	4	375
Canyon Oil & Gas Co.	2	4,500
Centerfield Oil Co.	1	0
Coble-Whittenburg	2	1,000
Currie Bros. & Phillips	1	2,250
Cockrell-McIlroy	2	1,500
Derby Oil Co.	1	500
Devonian Oil Co	1	50
Dixon Creek Oil Co.	8	4,500
Double 5 Oil Co.	1	100
Dunnigan et al	1	350
Fly-Blackburn Oil Co.	1	300
Gates Oil Co.	4	350
Gibson & McMillan	1	75
Golding & Phillips	1	15
Gulf Prod. Co. and Panhandle	10	2,650
Gulf Prod. Co.	4	700
Gulf Prod., fee	1	275
Heywood et al	1	0
J. K. Hughes Dev. Co.	4	575
Holmes, Currie & McKnight	1	250
W. H. Holmes	1	250
J. H. Lennix	1	0
Lennix & Pattison	1	1,575
Lucky 10 Oil Co.	1	100
Mariand Oil Co.	1	25
Midwest Exploration Co.	3	490
McMan Oil & Gas Co.	4	1,485
McIlroy & Herring	2	200
McIlroy Bros. et al	3	485
J. H. Middleton	1	30
Newby Oil Co.	1	35
New Domain Oil Co., Borton	1	30
New Domain Oil Co.	1	0
Phillips & Heywood	1	150
J. R. Phillips-Weatherly	1	40
Phillips Pet.-Barnum	1	110
Phillips Pet.-Coble	5	4,315
Phillips Pet. Finklea	1	650
Phillips Pet.-Gibson 62	2	230
Phillips Pet.-Gibson 63	1	35
Phillips Pet.-McMillan	1	435
Phillips Pet.-Jerry	2	2,340
Phillips Pet.-Whittenburg	1	80
Phillips Pet. et al	1	555
Phillips Pet.-Huff	1	185
Phillips Pet.-Pulaski	1	0
H. E. Smith et al	4	570
H. E. Smith et al (Sec. 12)	1	135
J. A. Whittenburg	1	290
Prairie-Weatherly	2	100
Prairie-Johnson Bros.	1	0
Relief Oil Co.	2	720
Riley Holmes	1	785
Roxana (Sec. 14)	3	1,110
Roxana (Sec. 11)	3	660
Ryan Pet. Corp.	2	200
Skelly Oil Co.-Whittenburg	3	250
Skelly Oil Co.-Powell	1	35
Skelly-Cunningham	2	600
Skiatex Oil Co.	2	620
J. L. Smith	1	100
Smith-Bynum	1	425
Spring Creek Oil Co.	1	140
Summit Oil Co.	2	650
Sunny Jim Oil Co.	3	600
Travelers Oil Co.	2	750
J. D. Ward	1	50
J. D. Ward et al	1	510
Westex Oil Co.	3	3,700
White Eagle Oil & Ref. Co. (Johnson)	1	715
White Eagle Oil & Ref. Co., Smith et al	3	710
J. O. Whittington	1	0
Total	145	48,620
Average per well		335

Potter County

Amarillo Oil Co.	1	30

Carson County

Amarillo Oil Co.	1	0
American Ref. Co.	4	580
Gates Oil Corp.	1	10
Gulf Prod. Co.	9	285
Marland Oil Co.	7	1,190
W. W. Silk et al	2	85
Skelly Oil Co.	2	65
Sunny Jim Oil Co.	2	45
The Texas Co.-M. C. Burnett	3	95
The Texas Co.-M. C. Burnett	6	75
Total	37	2,430
Average per well		66

Gray County

Shamrock Pet. Co.	2	175
Wilcox-Pampa Oil Co., Worley & Reynolds	3	2,735
Wilcox, Combs & Worley	1	35
The Texas Co.	1	6
Empire Gas & Fuel Co.	1	10
Total	8	2,961
Average per well		370

Wheeler County

Gibson Oil Corp.	2	315
Continental Oil Co.	1	0
Midwest Oil Co.	3	20
Upton Gas Co.	1	0
Total	7	335
Average per well		48
Grand total	198	54,376
Average per well		274

Hutchinson County Locations

The American Refining Co.'s No. 1 Weatherly, SE cor. NW, Section 19, Block Y, M. and C. survey, rig; No. 2 Weatherly, 990 feet north and 330 feet west, SE cor. NW, location; No. 3 Weatherly, 990 feet south and 330 feet west, NE cor. NW, rig; No. 4 Weatherly, NE cor. NW, rig; all in Section 19, Block Y.

Anderson & Pritchard's No. 1 William Yake, SW cor. NE, Section 1, Block J, H. & G. N. survey, rig and tools.

The Buffalo Oil Co.'s No. 1 H. E. Smith and others, NW cor. SW SW, Section 14, Block Y, M. & C. survey, rig.

The Delmar Oil Co.'s No. 3 Johnson Brothers, SE cor. NW NE, Section 20, Block Y, M. & C. survey, location; No. 4 Johnson Brothers, SW cor. NW NE, same section and block, M. & C. survey, rig.

The Derby Oil Co.'s No. 2 Johnson Brothers, SE cor. N half SW, Section 20, Block Y, M. & C. survey, location. The Devonian Oil Co.'s No. 1 Johnson Brothers A, SE cor. of north 80 acres of south 240 acres, Section 16, Block 46, H. & T. C. survey, rig. Dominion Oil Co.'s No. 1 Johnson Brothers, 330 feet from south line and 330 feet from east line of 100-acre tract out of Section 23, Block M-23, location. The Gulf Production Co.'s No. 19 Dial, 306 feet south and 1,693 feet east, NW cor. Section 25, Block 47, H. & T. C. survey, building rig; No. 21 Dial, SE cor. N half Section 1, Block X02, H. & T. B. survey, moving in material; No. 22 Dial, NW cor. N half, Section 1, Block X02, H. T. & B. survey, moving in material; No. 23 Dial, 976 feet north and 330 feet east, SW cor. Section 1, Block 1, H. & G. N. survey, moving in material; No. 24 Dial, 1,773 feet north and 330 feet east, SW cor., Section 1, Block 1, H. & G. N. survey, digging cellar; No. 25 Dial, 330 feet north and 990 feet west, SE cor. N half, Section 1, Block X02, H. T. & B. survey, moving in material. No. 3 E. Cockrell, 1,648 feet south and 330 feet east, NW cor. of 325-acre lease out of Section 3, Block Y, M. & C. survey, building rig; No. 4 E. Cockrell, 305 feet north and 366 feet east, SW cor. of Gulf's 325-acre lease out of Section 3, Block Y, M. & C. survey, building rig. L. R. Hagay's No. 1 Johnson Brothers, SE cor. W half of north 160 acres, Section 66, Block 46, H. & T. C. survey, building rig. Harvey Oil Co.'s No. 1 Harvey, SW cor. Section 33, Block M-21, T. C. R. R. survey, spudding. W. Scott Heywood's No. 3 W. S. Christian, 330 feet north and 325 feet west, SW cor. Section 90, Block Z, G. C. & S. F. R. R. survey and located in W. S. Christian survey, No. 31-A, Block V, A-1232 (offset Gulf's No. 1 Dial), location. W. Scott Heywood's No. 4 W. S. Christian, 330 feet south and 325 feet west, NW cor. Section 89, Block Z, G. C. & S. F. R. R. survey and located in W. S. Christian survey, No. 31-A, A-1232. Lucky Ten Oil Co.'s No. 2-A Smith and others, SE cor. S half SE, Section 19, Block Y, M. & C. survey, location. Marland Oil Co.'s No. 2 Perkins-Dial, NE cor. E half SE, Section 1, Block XO2, H. & O. B. survey, location. Marland Oil Co.'s No. 3 Perkins-Dial, NW cor. E half SE, Section 1, Block XO2, H. & O. B. survey, location. Marland Oil Co.'s No. 4 Perkins-Dial, SW cor. E half SE, Section 1, Block XO2, H. & O. B. survey, location. Marland Oil Co.'s No. 5 Perkins-Dial 990 feet south and 330 feet west, NE cor. E half SE, Section 1, Block XO2, H. & O. B. survey, location. Marland Oil Co.'s No. 6 Perkins-Dial, 990 feet north and 330 feet west, SE cor. E half SE, Section 1, Block XO2, H. & O. B. survey, rig on ground. Marland Oil Co's No. 7 Perkins-Dial, 999 feet south and 330 feet east, NW cor. E half SE, Section 1, Block XO2, H. & O. B. survey, location. Marland Oil Co.'s No. 8 Perkins-Dial, 990 feet north and 330 feet east, SW cor., Section 1, Block XO2, H. & O. B. survey, location. McMan Oil & Gas Co.'s No. 3 Whittenburg-Archer, 250 feet south and 330 feet east, NW cor. of McMan's 57-acre tract out of south 177 acres, Section 65, Block 46, H. & T. C. survey, building rig. McMan Oil & Gas Co.'s No. 4 Whittenburg-Archer, 250 feet south and 330 feet west, NE cor. of north 57-acre tract out of south 177 acres, Section 65, Block 46, H. & T. C. survey, location.

NORTH CENTRAL TEXAS

(Continued from Page 40)

time. Jamison and others' No. 1 Cunningham was dry and abandoned at 1,080 feet. The Pure Oil Co.'s No. 4 J. W. Maddox "A", in the S. H. Arnold Survey, A-5, made 15 bbls. at 926-55 feet. Rycade Oil Corp.'s No. 1 R. W. Cunningham, in the G. Bayne Survey, A-15, was dry and abandoned at 1,548 feet; so was No. 2, at 1,100 feet, and No. 4 at 1,038 feet. The location for No. 3 was therefore abandoned, also. Texhoma Oil & Refining Co.'s No. 1 R. W. Cunningham, same survey, was another failure at 1,675 feet.

Palo Pinto County

Whatley and others' No. 1 Costello Brothers was dry and abandoned at 2,725 feet.

Shackelford County

Lake and others' No. 1 Davis, in Section 538, T. E. & L. Survey, was completed for 2,000,000 feet of gas at 523-35 feet. Magnolia Petroleum Co.'s No. 1 Moberly, Section 86, Block 10, E. T. R. R. Survey, south of the Cook Pool, was good for 30 bbls. on the pump at 1,308-12 feet. Melton Oil Co.'s No. 1 Edwards, Section 57 U. L. lands, made 27 bbls. of oil and 750,000 feet of gas at 1,985-89 feet, total depth 2,010 feet. Milham Corp.'s No. 1 Sedwick, Section 1,561, T. E. & L. Survey, flowed 300 bbls. in 12 hours at 3,553-70 feet.

Stephens County

Pomona Oil Co.'s No. 3 Crowley was a location bandoned. Rhodes & Higher's No. 4 Crowley made 20 bbls. of oil and 500,000 feet of gas at 3,025-40 feet. Clark & Hooker's No. 1 M. A. McNabb, Section 67, Block 4, T. & P. Survey, was dry and abandoned at 2,025 feet. Herbert Oil Corp.'s No. 1 McCauley was dry and abandoned at 2,195 feet.

Wichita County

Bullington, Lee & Pendleton's No. 2 Grace Jennings "B", in Section 8, H. T. & B. Survey, A-475, was dry and abandoned at 1,982 feet. Cozy Oil Co.'s No. 10 Warren was also plugged at 1,460 feet; No. 11 was temporarily abandoned at 195 feet; and No. 12, at 1,415 feet. F. P. McCullum's No. 1 Kemp & Kell, in Section 6, S. P. R. R. Survey A-1,294, was dry and abandoned at 1,850 feet. Humble Oil & Refining Co.'s No. 1 L. F. Potter, Section 6, Specht Colony Subdivision, was dry and plugged at 2,040 feet. Humble Oil & Refining Co.'s No. 2-A (was No. 6-A) H. B. Hines, Section 11, H. & G. N. Survey, A-147, was junked and abandoned at 75 feet. Madison Oil & Gas Co.'s No. 15 Burnett was dry and abandoned at 730 feet. Magnolia Petroleum Co.'s No. 4 Peeler made 7 bbls. of oil and 4 bbls. of water at 1,661-63 feet; No. 55 Rio Bravo had oil sand at 1,436-41 feet making 5 bbls. of oil and 42½ bbls. of water. John O'Neil and others' No. 1 G. L. Woodward, in Section 325, Waggoner Colony lands, was a failure at 2,017 feet and plugged. Panhandle Refining Co.'s No. 1 W. H. Chilson, Section 19, Denton County school land, League 4, A-114, was dry and abandoned at 1,816 feet. T. F. Pyle and others' No. 2 W. W. Overby, in the John M. Sharp Survey, A-262, was dry and abandoned at 1,251 feet. Rubsam, Hunter and others' No. 1 McClure "B", in Section 5, G. C. & S. F. Survey, A-363, was a 25-bbl. well at 1,325-37 feet in oil sand. Ryan Petroleum Co.'s No. 63 Nance, in the S. O. Fowler Survey, A-78, was dry and plugged at 1,812 feet; No. 64 made 6 bbls. at 483-98 feet; No. 65 pumped 50 bbls. from oil sand at 1,283-1,321 feet; No. 66 pumped 60 bbls. at 1,274-1,312 feet; No. 67 made 5 bbls. at 487-98 feet; No. 68 was good for 65 bbls. at 1,277-1,325 feet; No. 69 was dry and abandoned at 1,693 feet; No. 70 pumped 22 bbls. at 496-509 feet, total depth 511 feet. Skelly Oil Co.'s No. 6 B. Ramming, Section 1, H. T. & B. Survey, produced 9 bbls. from sand at 1,297-1,300 feet; No. 13 C. Ramming made 35 bbls. at 1,560-68 feet. Virginia Oil Association's No. 25 T. L. Burnett, in the NW cor. of J. F. Torrey & Co. Survey No. 2, A-787, made 5 bbls. at 1,377-83 feet, total depth 1,384½ feet. A. T. Wolf's No. 4 E. Daume, Section 1, S. P. R. R. Survey, A-266, was a 20-bbl. producer at 1,825-28 feet.

Wilbarger County

Barkley & Meadows' No. 7 Stephens "B", deepened from completed well of April 12, was good for 50 bbls. at 1,232-55 and 1,318-26 feet. Bob Brewer's No. 1 Waggoner was dry and abandoned at 2,006 feet. Empire Gas & Fuel Co.'s No. 41 Stephens, Section 83, Block 14, H. & T. C. Survey, made 171 bbls. initially at 1,397-1,414 feet in oil sand; No. 45 made 20 bbls. from sands at 825-40 and 848-52 feet. Humble Oil & Refining Co.'s No. 5 Bond "B" produced 15 bbls. of oil and 10 bbls. of water at 2,373-76 feet and was completed at that depth; No. 47 Stephens made 20 bbls. at 1,288-1,328 and 1,373-91 feet; No. 13 Waggoner "H", Section 46, Block 4, made 40 bbls. at 1,874-96 feet, total depth 1,897 feet; No. 7 Waggoner "M" made 200 bbls. at 1,831-76 feet, total depth 1,877 feet; No. 8 Waggoner "M" pumped 120 bbls. from oil sand at 1,880-1,903 feet; No. 9 Waggoner "M" pumped 80 bbls. at 1,828-50 and 1,869-92 feet; No. 10 Waggoner "M" pumped 140 bbls. at 1,845-52 feet. The "M" lease is in Section 42, Block 4, H. & T. C. Survey. The Humble Oil & Refining Co.'s No. 8 Waggoner "O", in Section 47, Block 4, made 120 bbls. initially from oil sand at 1,898-1,903 feet, total depth 1,917 feet; No. 9 "O" pumped 40 bbls. at 1,881-90 feet. Magnolia Petroleum Co.'s No. 72 fee made 70 bbls. at 1,641-43 feet; No. 2 More-Waggoner, in Section 59, Block 4, was dry and abandoned at 2,708 feet. Milham Corp.'s No. 3 Waggoner "A" was dry and abandoned at 2,885 feet; No. 10 Waggoner "H", Section 42, Block 4, made 75 bbls. at 2,330-33½ feet; No. 11 Waggoner "H" pumped 230 bbls. from sands at 1,817-22, 1,834-39 and 1,844-60 feet; No. 13 Waggoner "L" swabbed 220 bbls. at 1,890-1,904 and 1,916-23 feet. Miller Oil Co.'s No. 3 Waggoner pumped 40 bbls. at 1,945-61 feet, total depth 1,994 feet. Petroleum Production Co.'s No. 3 Dill "B" was dry and abandoned at 2,303 feet. Phillips Petroleum Co.'s No. 9 Waggoner "F" pumped 38 bbls. at 1,896-1,922 feet; No. 2 Waggoner "L", Section 45, Block 4, pumped 33 bbls. at 1,864-66 and 1,888-91 feet, total depth 1,911 feet; No. 6 Waggoner "QQ", Section 47, Block 4, pumped 185 bbls. from oil sand at 1,882-1,901 feet; No. 2 Waggoner "T", Section 44, Block 4, pumped 123 bbls. at 2,290-96 and 2,321-38 feet, total depth 2,340 feet; No. 3 W. T. Waggoner "T", Section 44, flowed 767 bbls. at 1,869-88 feet, total depth 1,890 feet; No. 2 Waggoner "JJ" pumped 60 bbls. at 2,320-46 and 2,402-05 feet, total depth 2,406 feet. Plost and others' No. 1 Woodward was dry and abandoned at 2,254 feet. The Prairie Oil & Gas Co.'s No. 3 Waggoner "A", in Section 45, Block 4, pumped 20 bbls at 2,295-2,345 feet. Shipley's No. 1 Waggoner was dry and abandoned at 2,454 feet.

Young County

Barnes and others' No. 1 W. F. Brown, in the S. Tynes Survey, A-274, was dry and abandoned at 785 feet. Bridwell & Heydrick's No. 8-A Beardon, S. G. Hardaway Survey, A-136, was dry and plugged at 1,110 feet. Bridwell & Mayfield's No. 9 H. B. Street, Section 2,444, T. E. & L. Survey, made 64 bbls. initially from oil sand at 1,294½-99½ feet. R. Campbell's No. 2 fee, Section 1,376, T. E. & L. Survey, was dry and plugged at 954 feet. It had broken sand at 940-52 feet but nothing in it. Chenault & Lea's No. 4 (was No. 3) R. H. Rachuig, Section 4, B. B. B. & C. Survey, A-1,838, swabbed 150 bbls. from oil sand at 1,166-69 feet. The Cosden-Consolidated Oil Co.'s No. 8 Benson, Section 1,391, T. E. & L. Survey, was dry and abandoned at 904 feet; No. 9 Benson made 7 bbls. from broken sand at 865-903 feet; No. 10 Benson pumped 8 bbls. from oil sand at 861-79 feet with broken sand at 879-87 feet; No. 11 Benson was dry and abandoned at 903 feet. Foster and others' No. 1 F. E. Wilton, in the S. Tynes Survey, A-274, was a failure at 579 feet. Hamilton & Martin's No. 2 H. L. Whitehead, NW cor. of their 22.5 acres, Section 166, T. E. & L. Survey, pumped 60 bbls. at 861-74 feet. Howard Petroleum Co.'s No. 4 G. P. Stewart, 450 feet north and 150 feet west SE cor. Section 8, Young County school land, A-1,284, was a 35-bbl. well at 534-44 feet; No. 5 G. P. Stewart, 750 feet north and 150 feet west SE cor. same section, was dry and abandoned at 604 feet; No. 6 made 16 bbls. from sand at 520-31½ feet, and No. 7 was dry and

abandoned at 547 feet. The Howard Petroleum Co. and Cole's No. 1 G. P. Stewart, in Section 3, Young County school land, A-1,284, was a 30-bbl. well at 543-48 feet; No. 2, 150 feet south and 450 feet east NW cor. Section 3, was good for 10 bbls. at 545-53 feet; No. 3 made 10 bbls. at 548-59 feet. Humble Oil & Refining Co.'s No. 12 Hamilton, 1,800 feet north and 150 feet east SW cor. Lot 1, Crawford Subdivision, I. Holman Survey, A-130, was dry and abandoned at 1,298 feet; No. 13 was abandoned after it was spudded. Long and others' No. 2 H. C. McCaghren, Section 1,367, T. E. & L. Survey, was dry and abandoned at 1,002 feet. Magnolia Petroleum Co.'s No. 3 Little made 35 bbls. at 1,266-83 feet. Pace Drilling Co.'s No. 3 A. A. Bernhardt, Section 238, T. E. & L. Survey, was dry and abandoned at 1,100 feet. Pandem Oil Corp.'s No. 1 Whitehead, Section 166, T. E. & L. Survey, was a 45-bbl. pumper at 857-70 feet. Phillips Petroleum Co.'s No. 2 Corbett was dry and abandoned at 4,111 feet. Ray & Massie's No. 1 Mrs. C. Williams, in the M. Rhodes Survey, A-1,523, was plugged as a duster at 702 feet. Reed and others' No. 2 J. W. Jack, Section 23, Young County school land, was also a failure at 555 feet. Roberts Oil Corp.'s No. 4 Rogers made 15 bbls. at 859-69 feet; No. 5 swabbed 200 bbls. at 857-58 feet. Shaw & Rathke's No. 1 H. O. Prideaux "B", in the A. Rohus Survey, A-240, was dry and abandoned at 727 feet; No. 1 M. A. Stewart, Section 27, Young County school land, A-1,284, was dry and abandoned at 680 feet; No. 3 M. A. Stewart was also abandoned at 572 feet. Stafford & Hayes' No. 3 F. C. Dailey, in the S. Tynes Survey, A-274, 450 feet south and 150 feet east NW cor. of south 57 acres of F. C. Dailey's 97 acres, was a 14-bbl. well at 555-72 feet. Sun Oil Co.'s No. 3 Otto Deitrich, Section 4, B. B. B. & C. Survey, A-1,700, made 65 bbls. at 1,171-74 feet; No. 7 swabbed 125 bbls. at 1,173-77 feet. Walker's No. 8 Benson, Section 1,391, T. E. & L. Survey, pumped 15 bbls. initially from oil sand at 854-62 feet. Wolf and others' No. 1 W. M. Ward, in the L. W. Ross Survey, A-1,352, was dry and abandoned at 701 feet.

PRODUCTION BY FIELDS
For Week Ending July 5, 1926

Electra

Atlantic Oil Prod. Co.	50
Empire Gas & Fuel Co.	585
Gulf Prod. Co.	1,036
Humble Oil & Refg. Co.	205
Magnolia Pet. Co.	3,486
Panhandle Refg. Co.	40
Phillips Pet. Co.	10
Prairie Oil & Gas Co.	110
Rio Bravo Oil Co.	575
The Texas Company	3,457
Texhoma Oil & Refg. Co.	1,268
Miscellaneous	5,500
Total	16,322

Burkburnett

Gulf Prod. Co.	430
Humble Oil & Refg. Co.	381
Magnolia Pet. Co.	2,651
Panhandle Ref. Co.	240
Prairie Oil & Gas Co.	21
Sinclair Oil & Gas Co.	52
Skelly Oil Co.	171
Sun Oil Co.	61
The Texas Company	378
Texhoma Oil & Refg. Co.	553
Miscellaneous	7,300
Total	12,238

Iowa Park

Atlantic Oil Prod. Co.	68
Gulf Prod. Co.	127
Humble Oil & Refg. Co.	144
Magnolia Pet. Co.	384
Panhandle Refg. Co.	20
Roxana Pet. Corp.	7
Simms Oil Co.	8
The Texas Company	216
Texhoma Oil & Refg. Co.	534
Miscellaneous	2,900
Total	4,508

Wilbarger

Atlantic Oil Prod. Co.	119
Empire Gas & Fuel Co.	950
Gulf Prod. Co.	56
Humble Oil & Refg. Co.	3,316
Phillips Pet. Co.	4,845
Prairie Oil & Gas Co.	212
Roxana Pet. Corp.	509
The Texas Company	26
Texhoma Oil & Refg. Co.	112
Tidal Oil Co.	12
Miscellaneous	4,300
Total	14,457

Archer

Atlantic Oil Prod. Co.	255
Barnsdall Oil Co.	930
Cosden Co.	680
Empire Gas & Fuel Co.	553
Gulf Prod. Co.	2,898
Humble Oil & Refg. Co.	1,392
Independent Oil & Gas Co.	10
Magnolia Pet. Co.	1,600
Marland Oil Co.	631
Panhandle Refg. Co.	105
Phillips Pet. Co.	539
Prairie Oil & Gas Co.	1,937
Roxana Pet. Corp.	363
Simms Oil Co.	500
Sun Oil Co.	314
The Texas Company	3,059
Texhoma Oil & Refg. Co.	3,034
Tidal Oil Co.	48
Miscellaneous	13,655
Total	32,503

Young

Atlantic O. P. Co.	634
J. S. Cosden	163
Gulf Prod. Co.	224
Humble Oil & Refg. Co.	295
Magnolia Pet. Co.	130
Marland Oil Co.	1
Mid-Kansas Oil & Gas Co.	10
Panhandle Refg. Co.	120
Phillips Pet. Co.	13
Prairie Oil & Gas Co.	8
Roxana Pet. Corp.	125
Simms Oil Co.	704
Sinclair Oil & Gas Co.	359
Sun Oil Co.	226
The Texas Company	444
Texhoma Oil & Refg. Co.	260
Tidal Oil Co.	122
Miscellaneous	3,675
Total	7,513

Stephens

Arkansas Fuel Oil Co.	25
Empire Gas & Fuel Co.	25
Gulf Prod. Co.	1,220
Humble Oil & Refg. Co.	670
Magnolia Pet. Co.	370
Mid-Kansas Oil & Gas Co.	1,515
Phillips Pet. Co.	425
Prairie Oil & Gas Co.	745
Republic Prod. Co.	125
Roxana Pet. Corp.	50
Simms Oil Co.	25
Sinclair Oil & Gas Co.	10
Sun Oil Co.	160
The Texas Company	995
Texas Pacific C. & O. Co.	1,355
Miscellaneous	4,365
Total	12,145

Shackelford

Empire Gas & Fuel Co.	25
Humble Oil & Refg. Co.	1,305
Magnolia Pet. Co.	45
Phillips Pet. Co.	650
Prairie Oil & Gas Co.	10
The Texas Company	185
Texhoma Oil & Refg. Co.	75
Miscellaneous	8,028
Total	10,320

Ranger

Arkansas Fuel Oil Co.	5
Gulf Prod. Co.	529
Humble Oil & Refg. Co.	50
Magnolia Pet. Co.	625
Mid-Kansas Oil & Gas Co.	125
Panhandle Refg. Co.	125
Phillips Pet. Co.	15
Prairie Oil & Gas Co.	570
Republic Prod. Co.	50
Simms Oil Co.	30
Sinclair Oil & Gas Co.	310
The Texas Company	165
Texas Pacific C. & O. Co.	775
Transcontinental	30
Miscellaneous	2,490
Total	5,894

Eastland-Comanche

Empire Gas & Fuel Co.	10
Humble Oil & Refg. Co.	90
Magnolia Pet. Co.	600
Mid-Kansas Oil & Gas Co.	125
Phillips Pet. Co.	40
Prairie Oil & Gas Co.	75
Sinclair Oil & Gas Co.	15
Skelly Oil Co.	125
The Texas Company	105
Transcontinental	25
Miscellaneous	675
Total	1,885

Brown

Cosden Co.	585
Humble Oil & Refg. Co.	1,750
Phillips Pet. Co.	75
Prairie Oil & Gas Co.	815
Simms Oil Co.	35
The Texas Company	425
Witherspoon Oil Co.	25
Miscellaneous	4,835
Total	8,545

Callahan

Humble Oil & Refg. Co.	3
Prairie Oil & Gas Co.	750
The Texas Company	160
Texas Pacific C. & O. Co.	20
Miscellaneous	3,325
Total	4,258

Miscellaneous Pools

Reagan County	30,147
Clay County	500
Montague County	4,664
Jack County	140
Throckmorton County	540
Baylor County	115
Palo Pinto County	419
Coleman County	1,625
Scurry County	55
Mitchell County	3,463
Crockett County	975
Upton County	560
Crane	80
Howard	33
Total	43,286

Panhandle

Carson County	2,675
Hutchinson County	46,905
Wheeler County	385
Gray County	3,145
Potter County	35
Total	53,145
Grand total	227,019

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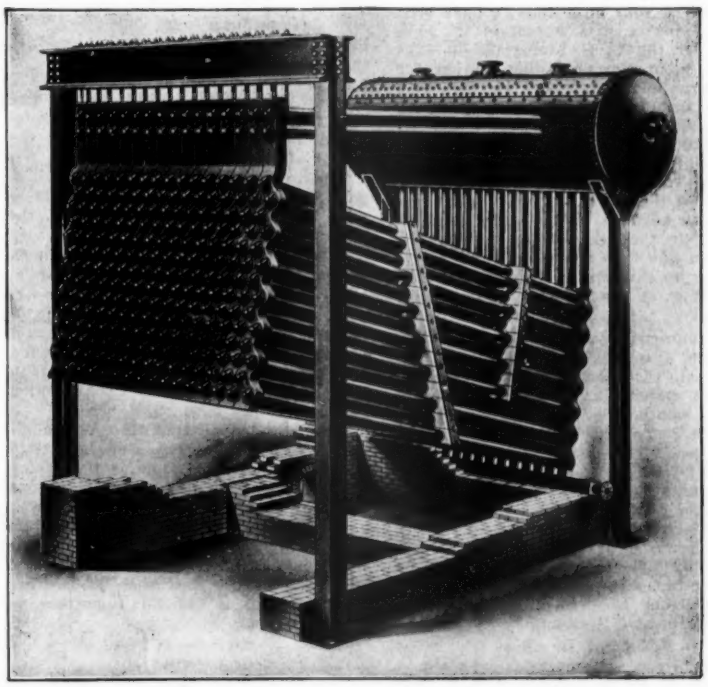
OIL STILLS, ACCUMULATORS, TANKS, CONDENSERS, HEAVY PLATE WORK

THE WALSH & WEIDNER BOILER COMPANY'S Sectional Header Water Tube Boiler is especially designed to meet the present day requirements of safe, high pressure Water Tube Boiler.

These Boilers are built in sizes up to 2,500 H.P. and for working pressures up to 500 lbs. per square inch.

Our plant is one of the largest in the United States and is equipped throughout with the heaviest and most modern machinery. We are therefore able to furnish Heavy Plate Steel Work of all kinds for Oil Refineries.



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Houston, Tex. | Greenville, S. C. | Chicago, Ill. | Havana, Cuba | Mexico City, Mex.

BUYING STRENGTHENS GROUP 3 KEROSENE

(Continued from Page 28)

given by the fairly heavy buying of the week previous. However, this generally is to be expected for a few days or possibly a week following a period of active buying.

The north Texas gasoline market is causing some temporary anxiety among Group 3 refiners as in that district considerable cheap motor fuel is being thrown on the market at much lower prices than the usual rate differentials. This gasoline is sufficient to compete closely with the Oklahoma product and as a result presented a very bearish aspect.

However, the north Texas situation generally is considered very flexible and the present weakness in that area might be corrected over night, especially if a substantial export order for higher gravity material develops.

Pennsylvania Cut

The general reduction in Pennsylvania crudes during the week so far has had but little depressing effect on the Oklahoma market. While such a reduction does not necessarily mean any weakening of Mid-Continent markets, there ordiarily is a slight depressing tone.

Another bearish development was the reduction by the Standard Oil Co. of New Jersey of export postings of gasolines and kerosenes, last Thursday. Spot markets of export gasolines in Oklahoma so far have not reflected this cut, which was in line with the efforts of refiners to prevent, if possible, any tendency for gasolines to slip at this time.

Considering all these conditions a more or less uncertain atmosphere permeated the entire Oklahoma gasoline market. Although the volume of business this season has been greater than ever before other market conditions have offset this considerably leaving the market on the whole questionable.

Refiners have labored against obstacles the past week with unfavorable motoring weather reported generally over the Mid-Continent's marketing territory. But despite this, prices have been maintained fairly steady and refiners feel that if they can hold out a little while longer, a greatly increased demand is certain to materialize.

Gasoline and Naphtha

Three or four large refiners have been maintaining a firm quotation of 11¼ cents for the U. S. Motor (58-60 437) gasoline but the prevailing market for movement to the trade was 11 cents with resale agents forced to pay 10⅞ cents. Some refiners reported business slow at 11 cents but from other companies there seemed to be a fairly active demand. Several large refiners, quoting 11 cents, explained that their volume of sales justified an advance in quotations to 11¼ cents but that they were keeping the price in line with other companies in order not to throw any check in the general effort of the industry to encourage buying.

An improved demand for the 56-58 450 gasoline also was reflected during the week with the announcement that several refiners were sold up on this material for a month. Several buyers reported bargain sales at 10⅝ cents but 10½ cents generally was the "low down" with the 58-60 450 gasoline bringing 10⅝ to 10¾ cents.

Higher gravity gasolines were inactive but the recent purchases enabled refiners to maintain a firm price, especially on the 60-62 400 grade, which was held at 11¾ cents. The 64-66 375 still was quoted from 12¼ to 12½ cents with some sales at 12⅛ cents.

Natural Gasolines

Considerable improvement was shown in natural gasolines with a noticeable tightening of prices. There was not a large demand but there were more small inquiries, many from refiners who have been using very little material in their operations. This was taken as an indication that the low prices of naturals are stimulating many refiners to increase their needs for these products. Grade C especially was stronger with little available under 8 cents. The B grades, however, still were available at 8 cents and the A grades at 8¼ cents.

Kerosenes and Distillates

The kerosene situation has been explained. Most refiners Tuesday were quoting 6 cents and getting a fair demand at that price but some buyers could find material at 5¾ cents. Kerosene below this latter price apparently has been cleaned from the market by the purchases of the Carter Oil Co. The 42-44 water white kerosene was not so active, although there is not a great deal of this around. This was bringing 6¼ cents and more.

The distillate situation still was on the fence. It still was a sellers' market with 38-40 straw distillate strong at 4½ cents. Contract making continued "in the air," although many inquiries were received by jobbers. Refiners on the whole are holding their distillate on the assumption they can not gain anything by selling now with possible record prices next season. On the other hand, reports from jobbers are to the effect that refiners are on the "wrong track" and that there is a limit to what refiners can ask for distillates.

Fuel Oil and Gas Oil

The fuel oil situation was unchanged. Only on the 28-30 grade was there any strengthening, this being due to the fact that this product is cornered in the hands of a very few refiners and there is little available. Other fuels were steady in price, although not active. Some 24 26 fuel was in demand from a few buyers but not in sufficient quantities to strengthen prices.

Gas oil was firm, particularly cracking stock. The Texas Company is reported to have purchased a fair amount of gas oil from Oklahoma refiners paying a minimum of 4⅛ cents. This with additional purchases by the Atlantic Refining Co. in north Texas resulted in a generally stronger tone.

Lubricants and Wax

Lubricants were steady with no developments of importance. Bright stocks continued particularly in demand but no effort was made by refiners to advance quotations. Wax, however, was softer with few inquiries. Spot material could be found at 4¾ cents a pound.

Late Fields

(Continued from Page 37)

himself and other owners, has sold to the Magnolia for $60,000 cash the west half of Section 686 amounting to 320 acres. The northwest corner on the southeast corner of 684 and the Associated-Carson well is approximately the center of 684.

Due to the purchase of the North & South property at Luling with 15,000 or more barrels daily production by the Magnolia Petroleum Co. it is necessary for the Magnolia to put extra burden on its pipeline from the Luling Field to Hull. Additional pumping stations are being put in along the line and one of these is at Waelder, Tex., 25 miles east of the Luling Field, where the Magnolia has purchased 10 acres of land for a pumping plant and will start construction of the line and once.

An additional effect of the Magnolia's purchase of the production of the United North & South at Luling is the taking off the market of a considerable volume of independent oil that found its way to the hands of jobbers and others at San Antonio and elsewhere in Texas. This was an advantageous supply for the small jobber and most such jobbers are having rather a difficult time now to get crude.

GULF COAST

HOUSTON, Tex., July 13.—The Abercrombie Co.'s No. 1 West Schenck at Blue Ridge, is flowing 1,000 bbls.

The Rycade Petroleum Corp. abandoned No. 7 Wisdom on the Nash Dome, 7 miles southeast of Damon Mound, Brazoria County, at 1,450 feet in gyp.

Coastal operators are speculating on the probable peak production in the new deep sand section at Spindletop. The estimates run all the way from 50,000 to 100,000 bbls. by August 1 next, being based on the manner in which the present wells are holding and the possibilities to be expected from the tests now drilling. The Yount-Lee Oil Co., which opened the deep sand area, holds a majority of the acreage that is considered to be within the probable limits of the deep sand section. The Gulf, Sun Oil Co. and smaller companies and individuals are drilling on tracts of from 2 to 5 acres. This means an unusual number of offset wells. The Oil and Gas Division of the Railroad Commission has never strictly enforced the customary spacing regulations between wells in the Gulf Coast region because the acreage around these domes was cut up into small tracts during the early boom days. If the regulations were enforced it would be impossible to operate on some of these strips.

The Rio Bravo Oil Co. has been delayed with its test on the Texas & New Orleans Railroad right of way with a fishing job, but has recovered the twisted off drill pipe and is now drilling ahead around 2,800 feet. Paggi Oil Co.'s No. 1 Gordon is below 2,400 feet. Both should be completed this week and then there will be a lull for 10 days or more before any other tests will be nearing the pay sands.

Quite Different Now

The revival of Spindletop serve to call attention to the progress of the oil industry in a quarter of a century, especially the increase in prices and the stability of the industry today compared with 25 years ago. Just 25 years ago Spindletop was producing thousands of barrels per day, for which there was no market and the oil was being wasted over the surrounding prairie. The price ranged from as low as 3 cents to 10 cents per barrel, and producers were glad to take what they could get. The crude was rated purely as fuel oil and the refiners of those days declined it, even at a few cents per barrel. Men with vision excavated earthen storage tanks, bought millions of barrels of the low priced crude, placed it in storage and then set themselves to the task of creating a market. The south Texas and south Louisiana railroads adopted it as a fuel for locomotives and the few industries in the south in those days followed the example of the railroads. Long term contracts were made at low prices. Thus The Texas Company, the Gulf Refining Co., the Security Oil Co., the forerunner of the present Magnolia Petroleum Co., started. The Spindletop Pool produced a new lot of leaders in the petroleum industry, men like J. S. Cullinan, T. J. Donoghue, E. R. Brown of the Magnolia Co., J. Edgar Pew, of the Sun Oil Co., John Fisher, deceased, and Underwood Nazro, of the Gulf interests and many others date their prominence in the business back to Spindletop in 1901. Money was scarce in those days and these new leaders experienced many difficulties in financing the oil from the gushers on "the hill" and developing a market for it.

Today the deep sand output is being handled without the loss of a barrel by pipelines of which the men mentioned are the executives. Instead of 3, 5 and 10 cents per barrel, the present producers are being paid from $1.50 per barrel up.

KANSAS

Youkers and others' No. 2 Walstein, SW cor. NE NW, Section 2-21-6w, in Rice County, Kansas, has been drilled 22 feet deeper to a total depth of 3,409 feet and has increased to 1,600 bbls. This well has been previously reported in a different location, and the above location is correct.

MICHIGAN

SAGINAW, Mich, July 13.—Bliss Petroleum Co.'s wildcat test, 2 miles north of the discovery well in the Saginaw Field, drilled to water in the Berea sand around 1,900 feet and has been abandoned. Saginaw Prospecting Co.'s second well on city of Saginaw property, 700 feet north of the discovery well, is showing for 30 bbls., total depth 1,821 feet.

TEXAS PANHANDLE

FORT WORTH, Tex., July 13.—Phillips Petroleum Co.'s No. 1 Whittenburg-Huff, Section 12, Block Y, Hutchinwards depending on its gravity, so that one well today brings its owner more revenue in 24 hours than did all the gushers combined 25 years ago.

Within a radius of 20 miles of Spindletop, are six refineries with a combined charging capacity of 248,000 bbls. per day. Modern methods enable refiners to make desirable and valuable motor fuel from what was considered practically valueless crude a quarter of a century ago. The opening of the Spindletop Pool marked an era in the industry in that it started producers westward from the older regions back East. The finding of a deep sand there marks another era, coming as it does with the rapid development of the cracking process in refining.

CRUDE OIL PRICES

(Contiued from Page 127)

Big Muddy	2.25
Mule Creek	1.75
Grass Creek, light	2.40
Grass Creek, heavy	.90
Elk Basin	2.40
Lance Creek	2.40
Rex Lake	1.45
Osage	2.40
Lost Soldier (contract)	1.35
Greybull-Torchlight	2.15
Hamilton Dome	1.35
Cat Creek (Mont.)	2.40
Sunburst (Mont.) (May 6)	1.05
Florence (Colo.)	1.60
Artesia	1.95
Hogback (N. Mex.)	2.45

Note: Salt Creek, Osage, Cat Creek, Greybull and Hogback posted by Midwest Refining Co., and the remainder by the Ohio Oil Co. Both companies post Grass Creek light and Elk Basin.

EASTERN STATES
Joseph Seep Purchasing Agency
(Effective March 8)

Penna Grade Oil in New York Transit Lines (New York)	$3.40
Bradford District Oil in National Transit Lines (Pennsylvania)	3.40
Penna Grade Oil in National Transit Lines (Pennsylvania)	3.30
Penna Grade Oil in Southwest Pa. Line Lines (West Virginia)	3.30
Penna Grade Oil in Eureka Pipe Line Lines (Pennsylvania)	3.25
Penna Grade Oil in Buckeye Pipe Line Lines (Ohio)	3.05
Cabell Grade Oil in Eureka Pipe Line Lines (West Virginia) (May 17)	2.40
Corning Grade Oil in Buckeye Pipe Line Lines (Ohio) (May 22)	2.55
Somerset Medium Oil in Cumberland Pipe Line Lines (Kentucky) (May 17)	2.50
Somerset Light Oil in Cumberland Pipe Lines (Kentucky) (May 17)	2.65
Ragland Grade Oil in Cumberland Pipe Line Lines (Kentucky) (May 19)	1.25
Gaines (Pennsylvania) (Apr. 27)	2.85
Keister (Pennsylvania) (Feb. 15)	2.30

MIDDLE WESTERN STATES
Ohio Oil Co.
(Effective May 17)

Lima	$2.48
Wooster	2.55
Illinois	2.37
Indiana	2.25
Princeton	2.37
Plymouth	1.90
Waterloo	1.35
*Western Kentucky, 32.9° and below (May 18)	2.10
33° to 35.9° (May 18)	2.20
36° to 38.9° (May 18)	2.30
39° and above (May 18)	2.40
†Cumberland, Barren and Monroe Counties, Ky. (May 17)	2.65
**Oil in lines of Stoll Oil Refg. Co. in Oil City, Ky.	2.65
**Oil in lines of Stoll Oil Refg. Co. in Tinsley Bottom, Tenn.	2.46
§Oil Springs (Canada) (May 18)	2.95
§Petrolia (Canada) (May 18)	2.88

**Posted by Stoll Oil Refg. Co.
*Posted by Indian Refining Co. †Posted by Paragon Development Co. §Posted by Imperial Oil Co., Ltd.

MEXICO
(Effective May 13)

*Tuxpam light (f.o.b. Mex. ports)	$1.35
§Panuco heavy (f.o.b. Mex. ports)	1.15
Tuxpam (New York)	2.15
Panuco (New York)	1.80

*Plus 32.328c tax. §17.631c tax.

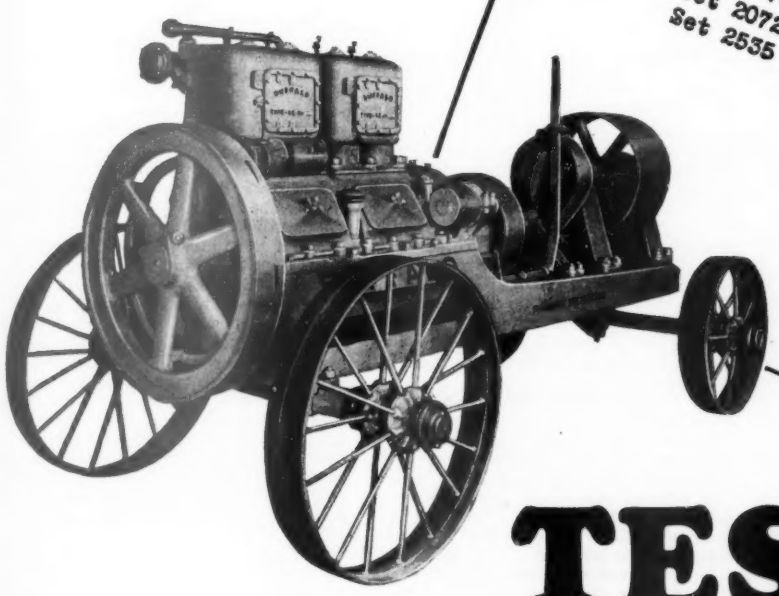
Buffalo

Well was drilled by Ballard & Burns with a Buffalo Drilling Unit for the Mississippi Valley Oil & Gas Company on the Pixlee farm, 12 miles west of Madison, Kans.

Drilled in 30 days including underreaming. Started in a 20-in. hole, completed at a depth of 2535 feet. Not even a five minute shut down from engine trouble. Fuel cost less than $10. per day.

Casing Record

Set 212 ft. of 15½ in. Casing
Set 1010 ft. of 12½ in. Casing
Set 1570 ft. of 10 in. Casing
Set 2072 ft. of 8¼ in. Casing
Set 2535 ft. of 6-5/8 in. Casing



TESTS

Prove the Superiority of the Buffalo Drilling Unit

Wherever it is used the Buffalo Drilling Unit is piling up new records of efficiency. Read what one Buffalo Drilling Unit did in Greenwood County, Kansas.

The Buffalo Drilling Unit is built to meet the actual conditions found in the fields. It has plenty of power—a four-cylinder, 6¾″ x 9″ engine with full pressure lubrication, speed 250 to 800 r.p.m.

It operates on gas, gasolene or both. The whole outfit is mounted on a solid cast steel frame which makes shifting of alignment impossible. It needs no special foundation for setting—it can be rigged up in one hour.

It generates light for the derrick. Considering its power it is light and easily portable — saves $40.00 to $100.00 per well, moving cost.

The speed is limited by a governor, which is positive, quick-acting, simple and dependable. The engine is always under control by means of the usual telegraph cord operating control switch.

No distortion on the clutch from action of belt pull. The drive shaft from the clutch has a hardened, ground and heat-treated pinion mounted on it. This pinion engages a large, hardened and heat-treated gear which drives the pulley shaft. The drive pulley shaft is 4″ in diameter and carries a 26″ pulley with 14″ face. The shaft is supported on either side of pulley by heavy "A" steel supports. All gears are cut, heat-treated, hardened and ground.

The Buffalo Drilling Unit can be used on standard rigs and all makes of drilling machines. No outfit surpasses it for economy and efficiency.

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Pure Oil Eastern Plant Now Modern

Refinery at Marcus Hook, Pa., Has Been Rebuilt and Enlarged With New Equipment. Skimming Facilities of Special Interest.

By L. M. Fanning

When the Pure Oil Co. decided to rebuild its Marcus Hook, Pa., refinery—one of the oldest plants in the East handling Pennsylvania crude oil—the thought was to make it one of the country's most up-to-date refineries. This thought has been carried out in the construction and operation of the refinery which is now handling from 8,000 to 10,000 bbls. a day of Texas crude oil and some Pennsylvania oil, as against the old plant's 3,000 bbls. of Pennsylvania crude.

The new plant contains three complete tube stills with independent fractionating equipment. Each tube still has a capacity for handling 5,000 barrels of crude oil per day and evaporating it to a 10 to 15 per cent residuum.

The tube furnace design is of a novel type. They contain certain unprecedented features that have met every expectation in their operation. The oil is heated in these furnaces in two stages. After passing through the various heat exchanging apparatus where it picks up heat from the outgoing hot oil fractions, the fresh crude is run through the preheater section of the furnace where it is heated to a temperature high enough to cause vaporization of all of the gasoline fractions. After these light oils are removed the remaining oil is picked up with hot oil pumps and put through the main bank of heater tubes in the same furnace, where enough additional heat is added to bring about the further vaporization desired. Heating surface in these tube furnaces is of the Foster extended surface type which permits the heating surface to be placed in a much smaller space than would otherwise be required.

The fractionating towers and other equipment were designed completely by Pure Oil Co. engineers. The fractionating results obtained in these towers to date have surpassed all expectations. The fractionating equipment on each of these tube still units consists of three towers. The material taken overhead from the first tower is gasoline which is stripped off the crude immediately after the first stage of heating is completed. The residuum from this tower is returned to the tube furnace for further heating and is run to the evaporator. The residuum from this evaporator constitutes from 10 to 15 per cent of the crude throughout and is run to fuel oil. The residuum from these evaporators can, when desirable, be made into cylinder stocks.

The vapors from the evaporators pass on through the second and third towers in series. The oil taken from the bottom of the second tower is run to wax distillate. The oil taken from the bottom of the second tower is used as cracking stock for use in the Cross Process. The vapors from the top of the third tower are condensed into kerosene which by only a little treatment with acid is made into an excellent product. "Negative gaps" in the boiling ranges between these products from the towers are now accepted as standard and lack of a "negative gap" is always cause for bringing about changes in operation which will restore the gaps. The operation of these units is almost completely automatic, requiring careful observation on the part of the operators, but very little manipulation.

Cracking Equipment

The cracking equipment in the new plant consists of four Cross process units each having a capacity for running 2,000 bbls. per day of cracking stock. The cracking apparatus on these units is of the conventional Cross process type, but the apparatus for separating the various fractions from the hot synthetic crude produced is distinctly pure oil. This apparatus gives the operator complete and flexible control over the boiling range, etc., of the various fractions produced. This equipment also is nearly automatic in its operation. All of the fractionating equipment used in conjunction with these Cross process units was designed by Pure Oil Co. engineers.

The old plant contained approximately 200 tanks of various sizes, and fully half of these were moved to new locations and fitted with modern breathing and fire equipment protection.

Sixteen new steel spherical roofed gas tight tanks have been erected for use as run down tanks for the new tube stills. All of the light oil tanks in the plant in addition to being gas tight, like the other tanks are connected to the gas recovery system so that evaporation losses in the refinery are practically nil.

New Plant

The new plant is divided into two parts: The light oil department and the heavy oil department. Each of these two parts is supplied with a centrally located oil pump house where all of the main pumping operations are conducted.

Each pump house is equipped with a separate motor house in which the individual motors for driving the pumps are located. This feature prohibits any fires or explosions due to sparks from the direct current motors.

Every part of the plant is joined in these pump houses with pipe lines and manifolds. The manifolds are all built from pedestal fittings and cross valves of the globe type. In addition to being entirely leak-proof, these manifolds present a neat and pleasing appearance and give the pump operators complete and simplified control of the pumping operations without leaving the building.

The wax plant was the newest part of the old plant and is modern in every respect. It is equipped with absorption ice machines having a capacity of about 200 tons of refrigeration per day and a number of 48-inch 400-plate filter presses capable of handling 1,800 bbls. per day of wax distillate. Very few changes were required in this part of the plant.

The new wax sweating ovens are of a novel design developed by Pure Oil Co. engineers. These ovens permit more complete control of melting points and make possible much larger yields of high melting point wax from the slack wax than has been possible with the conventional type sweaters.

Part of the equipment in the old plant consisted of a battery of ten old type shell stills of 1,000 bbls. capacity each. These stills with their settings and condensers were completely overhauled and modernized. A new receiving house was constructed for these stills and additional run down tanks were provided by refabricating old tanks taken down from other parts of the old plant. This battery of stills is located in the heavy oil part of the new plant and is now being used for rerunning and reducing the various lubricating oil fractions.

Filter Plant

The filter plant is of the contact filtering type. In this plant the various lubricating oils are brought into intimate contact with the fullers earth filtering medium in three large heating and mixing or contact tanks. After the contact between the oil and the clay has been completed the mixture is pumped through either one of the two Sweetland filter presses where the clay is deposited. The filtered and finished lubricating oil runs by gravity from these presses to the storage tanks from which it is either loaded into tank cars or placed in packages for shipment. After a run is completed, the clay which has been deposited in the press is dumped into a screw conveyor directly beneath and is then conducted to a point outside the building for disposal.

All of the motors which drive the various machinery for this filtering plant are located in a separate motor house so that there can be no hazard from sparking motors. The building which houses this filtering plant is a neat two-story brick structure.

Agitators from the old plant have been moved and reconstructed. In these agitators the various lubricating oils are treated with acid preparatory to their treatment in the Sweetland filter plant.

All of the sulphuric acid used in the treatment of the various oils is concentrated to 66 degrees Baume. The acid sludge produced is conducted to a separating plant of conventional design where the acid is separated from the oil sludge. The separated acid which has been diluted to about 34 degrees Baume is then placed in an acid concentrator of the Simonson-Mantius type where it is concentrated to 61 degrees Baume. This 61 degrees Baume acid is then mixed with concentrated acid to bring its concentration up to 66 degrees Baume and it is again used in the plant. The oil sludge from the separating plant is fluxed off with fuel oil and is burned in the stills and boilers in the refinery. This acid plant eliminates the problem of disposing of acid sludge which is a great worry to some refiners not so equipped.

Water Supply

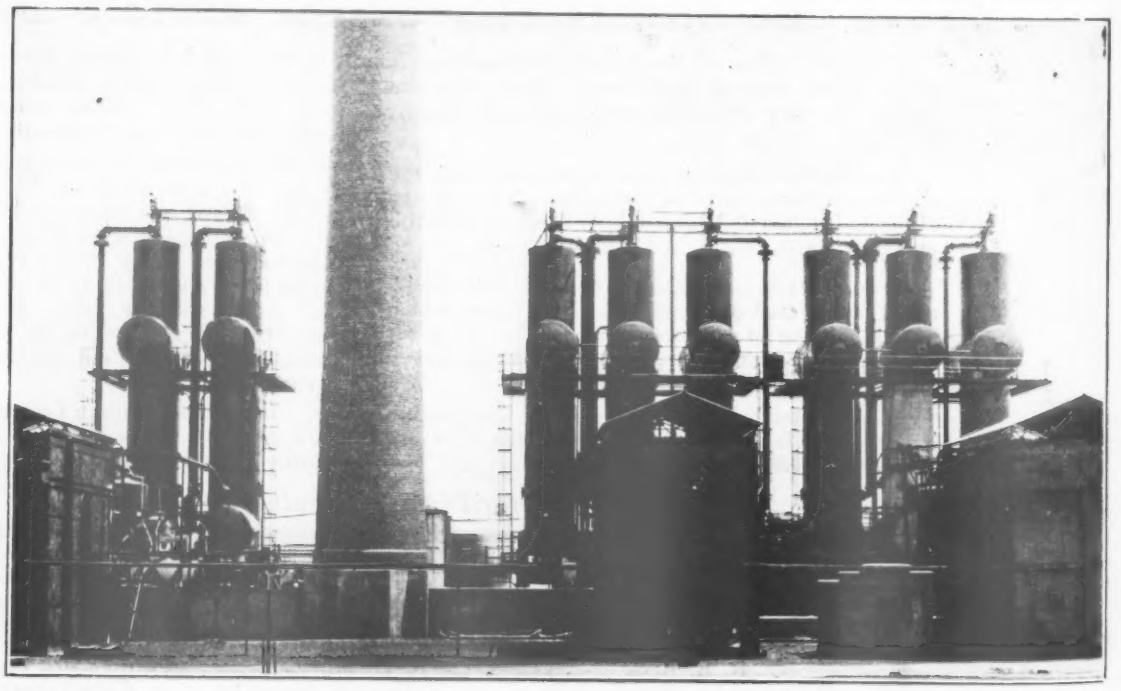
The water supply for the refinery is obtained from the Delaware River. Pump houses located in the plant for pumping this water are equipped with electric motor and turbine driven centrifugal pumps and a large cross compound steam pumping engine. Heat exchangers and other heat saving apparatus are so universally used in this plant that the quantity of water required for condensing and cooling the various oils is reduced to a comparatively small amount.

All of the water used in the boilers is treated in a Zeolite water treating system which reduces the formation of scale in the boilers to a minimum and permits each boiler to remain in operation for many weeks at a time without expensive shutdowns for cleaning.

All of the steam used in the refinery is generated in two boiler plants, one in each end of the refinery. The boiler house at the north end of the plant is equipped with two 440 horsepower and two 450 horsepower water tube boilers making a total of 1,780 rated boiler horsepower available in this part of the plant.

The boiler house at the south end of the plant is equipped with one 440 horsepower, two 375 horsepower and one 250 horsepower water tube boilers making a

(Continued on Page 154)



Three tube stills at the Marcus Hook, Pa., refinery of the Pure Oil Co. Each unit has a capacity of 5,000 bbls. daily, taking overhead all but 10 to 15 per cent residuum.

The Cross Cracking Process

CROSS Units in operation and building at this time, have a throughput capacity of over 180,000 barrels daily. REPEAT orders included in this total amount to over 72,000 barrels daily.

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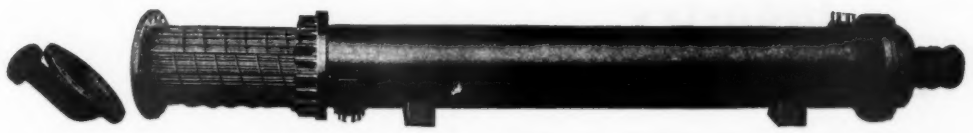

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This cooler saves space because its counter-current flow of gas and water, high rate of heat transfer, and the twin design in which it can be furnished result in the most compact construction on the market.

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EFFECTS OF PARABOLIC VARIATION BETWEEN PRESSURE AND VOLUME

By Stanley C. Herold
Petroleum Geologist, Stanford University, California

Today we shall investigate some of the technical and economic consequences of parabolic variation between pressure and volume, for according to preceding installments of this series, we have this type of variation to deal with when oil and gas wells are of Capillary Control. We must determine whether such a relation between these functions is worthy of recognition. If we find the consequences negligible, the knowledge of the fact in itself may be worth while, but if we find them to be of serious nature, then we must take heed, and govern ourselves accordingly.

At the risk of slight repetition we shall first make the usual comparison between two reservoirs, one of Volumetric and the other of Capillary Control. Then we shall be amply prepared to consider a concrete case involving pressure and volume. For our illustration we shall study the performance of the Zoar Storage Field. This field is a part of the natural gas plant which furnishes gas to the city of Buffalo, N. Y. Previously exhausted wells are filled during each summer from distant sources, and held for distribution in the winter months of heavy demand. Observations on pressure and volume are tabulated throughout operations, and for these data which are to serve as a basis of our analysis, we are indebted to Mr. Thomas R. Weymouth, president of the Iroquois Gas Corp., Buffalo, and to Ralph E. Davis, engineer, Pittsburgh, Pa.

Comparative Performance

624. The relative curves for pressure-volume relations in the two finite controls are shown on the chart in Figure 624. This figure is indeed quite like Figure 562 except in the matter of scales. These are now percentage scales arranged in the customary manner. As in Figures 621 and 622, only the curves in the main frame are given; but all relative curves for derived primary function relations may be extended upward to the left as far as desired for values greater than 100 per cent.

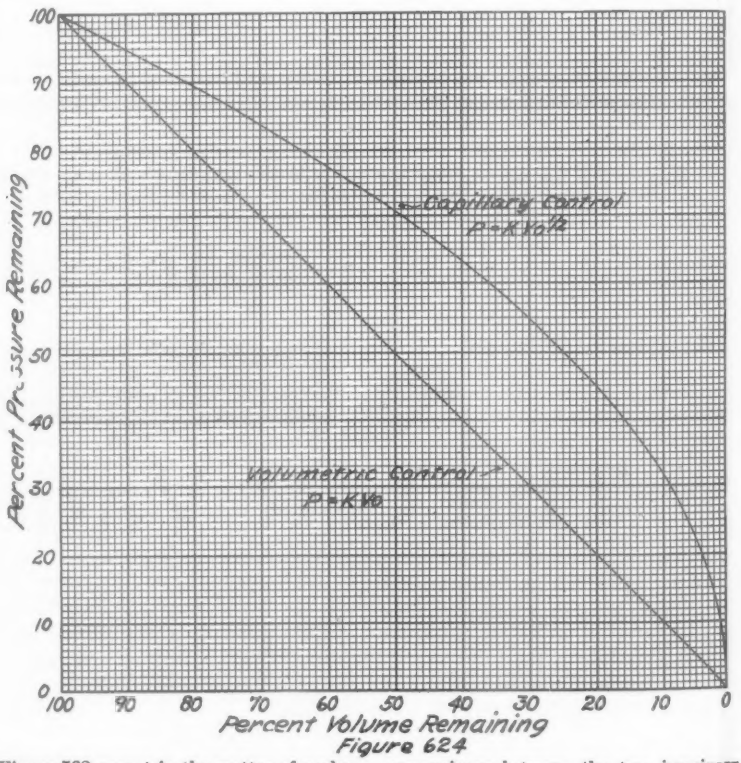

Figure 624

Now let us suppose that we have two gas wells, each with a pressure of 500 pounds per square inch, and each capable of producing 500,000,000 feet of gas. We are not at all concerned with time when we are considering only these functions of delivery. (Article 478.)

When both wells have declined to 50 per cent of their pressures, i.e., to 250 pounds, we see from the chart that there remains to be produced from the Volumetric Control well 50 per cent of the total volume, or 250,000,000 feet, while from the Capillary Control well there remains to be produced 25 per cent, or 125,000,000 feet. On the other hand, when both wells have produced 50 per cent of their total volumes, the pressure of the Volumetric Control well has declined to 250 pounds, as just observed, where as the pressure of the Capillary Control well has only declined to 70.7 per cent, or 353.5 pounds.

Again we must be reminded that in order to fulfiill the relations shown in Figure 624 the quantities must be expressed in potential units. If changes are made in the conditions of production from the wells, new potential reservoirs are established. In contrast to the situation for Figures 621 and 622, it is to be noted that changes occasioned by manipulation of the orifice do not affect the relations shown in the present figure. The former figures involve velocity, which in turn involves time in its definition. Manipulation of the orifice affects velocity, but does not affect potential pressure and potential volume. It is essential that this be thoroughly understood, for herein lies the basis of our argument in favor of using pressure-volume curves when we make estimates on the total amount of gas or oil to be obtained from the well. (Article 231.)

Does not the argument of Articles 222 and 223, regarding the unsuccessful use of formulas, and the successful use of curves, become clear in the light of our comparisons between the two imaginary wells in their pressure-velocity, velocity-volume and pressure-volume relations?

Storage the Reverse of Production

625. Nothing can be more obvious than the fact that the process of filling a reservoir for storage purposes is the opposite of the process of production from the reservoir. We may therefore hold Figure 624 before a mirror, and observe the pressure-volume curves as we would construct them from data on filling. The mirror changes the positive direction for volume; instead of extending from right to left, it appears to extend from left to right.

The curves in the image pertain to the

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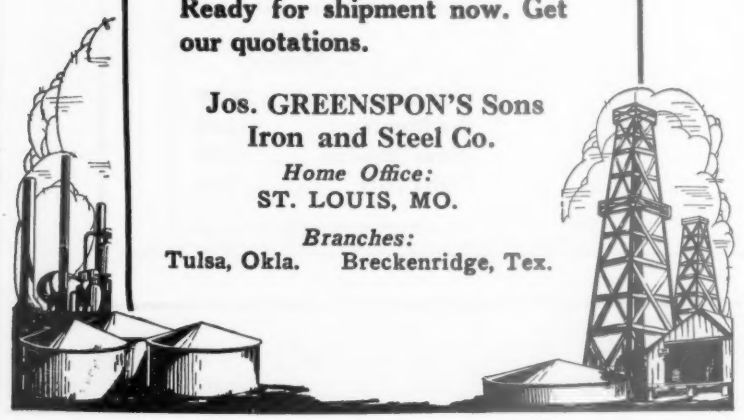

same controls, respectively, as in the original figure. If we fill a gravity solution tank, a rigid gas tank, or an exhausted well of Volumetric Control, we obtain the straight line appearing in the image, and if we fill a Jamin capillary tube, or an exhausted well of Capillary Control, we obtain the parabola. The manner of filling is immaterial. We might connect the empty reservoirs with filled ones and allow nature to supervise the filling, manipulating the orifice during the operation if we please, or we might fill at constant velocity, or at constant power, continuously or intermittently. In any case the curves in the image must be exactly fulfilled. As the pressure-volume relation of time in production, so is it likewise independent of time in the process of filling. The various ways of filling a reservoir of Volumetric Control, described in Articles 532, 535 and 536, involved time. The same will be found true when we later study the ways of filling a reservoir of Capillary Control.

626. The scales for a curve in an actual case of filling will ordinarily appear as numerical quantities, pressure in pounds per square inch, and volume in cubic feet of gas or barrels of oil. What significance can percentages have?

We may select any reasonable value of pressure as a basis of comparison, other than zero, and say that it shall represent 100 per cent, or we may select any reasonable value of volume, other than zero, for the same purpose. We are permitted to select the value of but one of the functions, for having so made a selection, the space dimensions of the reservoir will determine the other function. (Article 483.) If we select any but the final value of either function, we shall have need of the extension curves. By means of the relative curve we shall be able to compute readily the volume of fluid contained in a given reservoir at any pressure, or the pressure which the reservoir must possess for a given volume of fluid. The method of procedure will be illustrated in the problem now following.

Storage Field Data

627. Figure 627 is a faithful copy of the data furnished on the Zoar Storage Field operations. We have chosen the curves for the years 1917 to 1920, inclusive, for our purpose of analysis, since these show all the features possessed by any of the curves for the preceding and succeeding years.

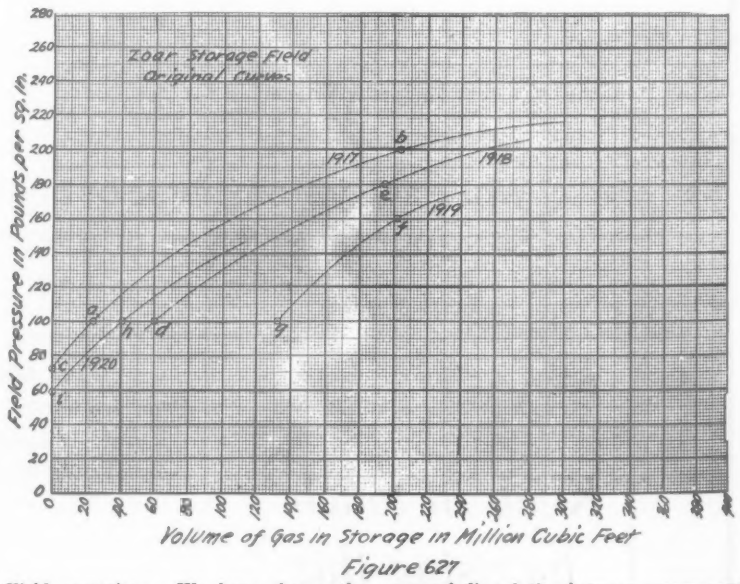

Figure 627

Now if we were to follow the methods used in the past, we would presumably look upon the lines in the figure as curves which ought in reality to be straight, but are prevented from being so on account of the imperfection of the gas, the unreliable nature of well performance in general, and the impossibility of obtaining accurate data from the men in the field. Therefore we would approximate a straight line through the various points of the curve, and obtain a line which satisfies because it is a perfected one. It would be unfair to expect the well to exactly fulfill our theoretically correct curve.

As an alternative method, however, suppose we assume that the curves might possibly be parabolas. Let us say that the parabolic relation between ordinates and abscissas is expressed by the formula

$$P = K\,Vo^{1/2},$$

and seeing that the point d on the 1918 curve indicates the values P=100 pounds, Vo=60,000,000 cubic feet, we may substitute these values into the formula and find that

$$K = 12.91.$$

Now we have the equation

$$P = 12.91\,Vo^{1/2},$$

into which we may substitute values of one or the other function at will. Let us substitute values for the volume from 60 to 280 millions, and compute the corresponding values of the pressure. We may tabulate. Designated values for volume are placed in the first column, the computed values for pressure are listed in the second, the actual pressure shown on the 1918 curve for each value of the volume in the third, the difference between the computed and observed pressure in the fourth, and the percentage error in the fifth column.

Vol.	Pres.	Observed Pres.	Error	Per Cent Error
60	100	100	0*	0*
80	115.5	116.0	+0.5	0.44 of 1 %
100	129.1	130.0	+0.9	0.70 of 1 %
120	141.5	143.0	+2.5	1.77 of 1 %
140	152.7	154.0	+1.3	0.85 of 1 %
160	163.3	164.5	+1.2	0.73 of 1 %
180	173.2	173.5	+0.3	0.17 of 1 %
200	182.5	182.0	—0.5	0.27 of 1 %
220	191.4	190.0	—1.4	0.73 of 1 %
240	200.0	196.5	—3.5	1.75 of 1 %
260	208.0	202.0	—6.0	2.88 of 1 %
280	216.0	206.0	—10.0	4.63 of 1 %

**Values assumed correct for subsequent comparisons.

If we may discard the last two values on the basis of their being excessive, and compute the algebraic average of the remaining 10 values in the final column by allowing for plus and minus errors, we find the average error for the curve as shown between 60 and 240 millions of cubic feet of gas to be 0.2 of 1 per cent, or one-fifth of a pound per 100 pounds measured.

It is evident that our assumption of a parabolic relation between pressure and volume has foundation.

The 1917 Curve

628. If we have not been over optimistic in our method of treating the 1918 curve, we should find the curve for the next year equally as accurate. This is indeed the case. It is not necessary for us to go through the same procedure in order to prove this. Rather let us analyze the 1917 curve in a different manner for reasons which will become apparent in due time. The accuracy of this curve, and its agreement with the 1918 curve, will be easily observed.

In this process of filling for storage, the pressure gauge may be read at any desired instant. This reading gives us a report on the condition of the reservoir at the instant, so far as the func-

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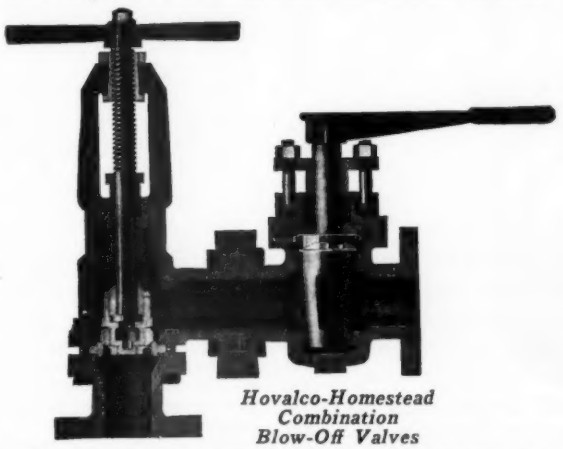

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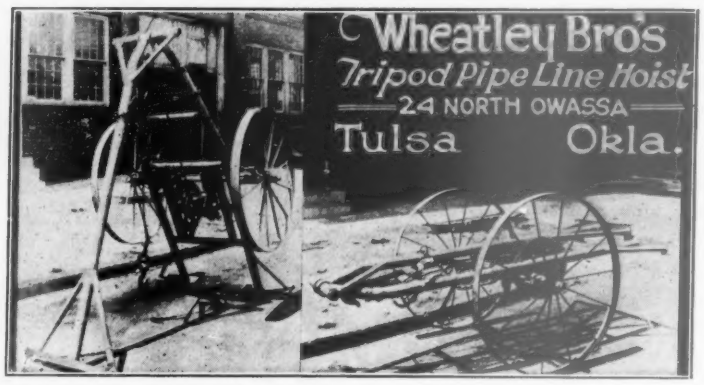

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tion of pressure is concerned. We cannot obtain a reading on the volume of deliverable gas in the reservoir at a given instant. The best we can do is to measure the volume stored or withdrawn from the reservoir between two readings on the pressure gauge. Now the volume of gas, represented by abscissas in Figure 627, has apparently been followed cautiously by continually striking a balance between the quantity of gas placed in storage and the quantity withdrawn for consumption. But suppose that we should make an error in counting the number of cubic feet of gas passing in or out; would we be able to detect it? Or would we continue onward from year to year, ignorant of the error in the count?

We shall not attempt to answer these questions right now,—the important point to be noted at present is the fact that we may rely upon pressures of the curves as shown by the scale of ordinates on the left, but we cannot rely upon volumes as shown by the scale of abscissas. We can, however, rely upon differences of volumes obtained by subtracting one indicated volume from another. This is in accordance with the nature of the observations.

629. For the 1917 curve, let

P_1=pressure at the point a=100 pounds,

Vo'=volume for the point a, indicated on the scale=24,000,000 cubic feet,

Vo_1=true volume for the point a, to be determined, and let

P_2=pressure at the point b=200 pounds,

Vo''=volume for the point b, indicated on the scale=204,000,000 cubic feet,

Vo_2=true volume for the point b, to be determined.

Then $P_1/P_2=50$ per cent; i.e., when on consumption the pressure declines from 200 to 100 pounds, it has 50 per cent of the original pressure remaining.

From Figure 624 we learn that a decline to 50 per cent pressure remaining corresponds to a decline to 25 per cent volume remaining, or 75 per cent volume withdrawn. Now Vo_2 conditions are standard 100 per cent conditions, and Vo_1 conditions are final or 25 per cent conditions. We may write

$Vo_2-Vo_1=Vo''-Vo'=75$ per cent total volume at standard conditions =180,000,000 cubic feet of gas.

Therefore $Vo_2=100$ per cent=240,000,000 cubic feet, and $Vo_1=25$ per cent=60,000,000 cubic feet.

It is clear that the count for 1917 was not correct. The curve appears displaced to the left by the amount of 36 million cubic feet. If we were to test this curve as we did the 1918 curve, it would be necessary to add this amount to all readings for volume indicated by the horizontal scale. The vertex of the 1917 parabola is located at minus 36 million, and it is necessary that measurements be made from the vertex if we wish to see clearly the promised parabolic relation between the functions.

The Curve for Any Year

630. The same process of calculation may be carried out with the points d and e of the 1918 curve. In doing this an interesting coincidence will be observed; namely, that the vertex of the parabola is precisely at the zero-zero point shown in Figure 627. The curve is at its correct location. We took advantage of this fact in our test of Article 627 in order to avoid complexity of argument.

If we shift the 1917 curve to the right by 36 millions, we will find it to coincide very nicely with the 1918 curve as shown, at least below the point e on the latter curve. We can now see justification for discarding values higher than e, for the point b, some 20 pounds and 55,000,000 cubic feet greater, is still consistent to the parabola. Were this not so, the value of the constant K in the general equation could not be exactly the same, whether computed from a and b, or from d and e. Those who are interested may check this, and find K equal to 12.91 for both curves.

Now it should become apparent how consistent this reservoir is in its performance, in spite of the appearance of Figure 627, where each year has its separate curve. We may now state an important fact; to wit, that had the count not become vitiated during each winter of consumption, we would find but one curve on the plat of this figure. The functions of pressure and volume should travel over the same path year after year, upward to the right in the summer, and downward to the left in winter.

By taking the equation

$$P=12.91\ Vo^{1/2}.$$

and substituting various values of P, ranging from zero to 260 pounds, we may obtain the points for the curve of Figure 630, entitled, "Corrected Curve for Any Year."

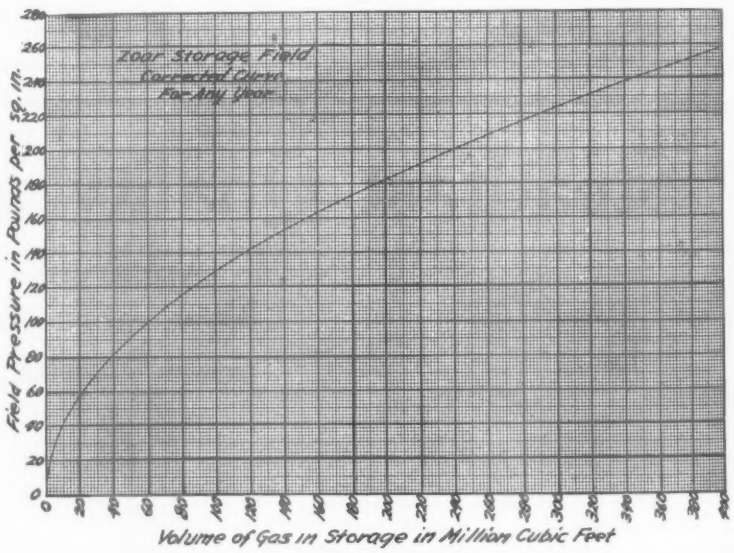
Zoar Storage Field
Corrected Curve
For Any Year
Field Pressure in Pounds per Sq. In.
Volume of Gas in Storage in Million Cubic Feet

Figure 630

This is the path for pressure and volume, now and forever, in the Zoar Storage Field. How accurate is the curve? By actual tests with the points a, b, d and e, in Figure 627, we find that we cannot expect an accuracy greater than 100,000 cubic feet in 200,000,000. The curves cannot be read more accurately. But we venture to say that improvements in observations can be easily made, and computations can be improved by using equations instead of curves, retaining the latter merely for the picture it presents to the eye. Then may we expect to obtain an accuracy approximating 20,000 in 200,000,000 cubic feet of gas. Is this too optimistic? We leave the answer to the engineers in charge of the Zoar Storage Field.

Interpretation of the Curves

631. With the curve of Figure 630 complete to the origin, the test for a parabola is a simple matter. Select a suit-

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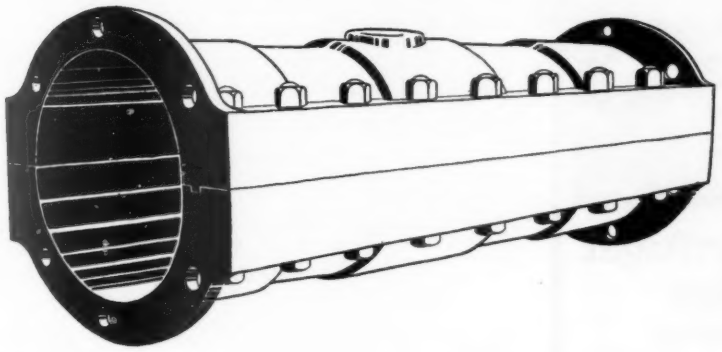

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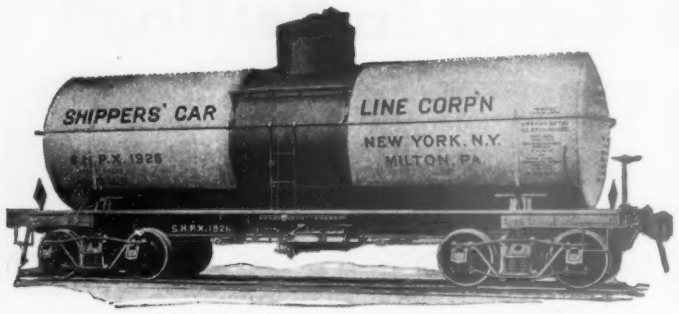

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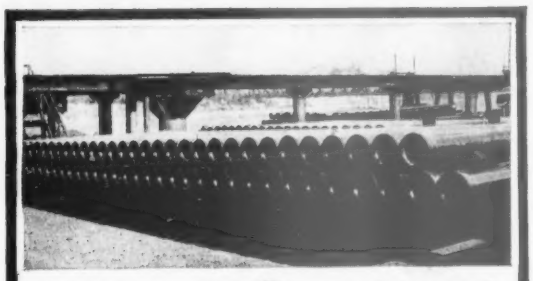

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able value of the volume and note the pressure corresponding to it. At four times this volume, note twice the pressure, and at nine times the volume, note three times the pressure, etc. This method was not used in Article 627 for the reason that the smallest volume shown on the 1918 curve is approximately 60 millions of cubic feet. Nevertheless, at 240 millions we can observe 196.5 pounds instead of the correct 200 pounds, an error of 1.75 per cent near the portion of the curve we decided to discard.

In making these computations it is necessary to assume that one or two of the points on the curves are absolutely correct with respect to pressure, and that the difference in volumes is also absolutely correct. We cannot do otherwise. For example, we assumed the pressures at the points a and b, and at d and e to be correct, and likewise the two differences of volumes corresponding to these points. On the 1919 and 1920 curves we shall assume one point only, and this with respect to pressure, for the corresponding volume must in any case agree with the curve of Figure 630.

Now let us return to the 1917 curve. It is to be noted that the point c indicates an absurdity, for we see that the reservoir has a pressure of 72 pounds, yet if we opened the well to the air, no gas would flow out, since the indicated volume is zero. Rather a strange condition for a well. But this was corrected in the next year. The 1918 curve, when extended downward, actually coincides with the zero-zero point of the scales given. Well and good.

Something is wrong with the 1919 curve. In the first place, the portion from g to f does not belong to the parabola of the reservoir. Only above f is it approximately correct. Secondly, it is shifted too far to the right. Assuming f to be correct in pressure it indicates a volume of 202 millions, whereas the reservoir can only have 153.6 millions at this pressure. Where did the increase come from?

On the 1920 curve let us assume that the point h is correct in pressure. Now 100 pounds pressure indicates 41 millions of cubic feet. The point g shows 122 millions at this pressure. What became of the 81 millions of cubic feet difference? Perhaps the impossible position of the 1919 curve was properly realized; so a correction was made accordingly. But surely the amount of correction applied was too great, for the 1920 curve now shows the absurdity at the point i, where 58 pounds pressure can deliver no gas.

Reconstructed Curves

632. We cannot dodge the situation depicted in the preceding article by claiming a disturbance occasioned by the fact that the gas leaves the reservoir against a line pressure which is greater than atmospheric pressure. This is, of course, true, but Figure 630 shows the potential volume in the reservoir at potential pressures recorded by the gauges. The well may be forced to produce against any line pressure, greater or less than the atmospheric pressure, so long as such line pressure is not greater than the reservoir pressure, and the relations shown by the true curve in the figure must remain unaffected. They must even remain unaffected when the line pressure is greater than the reservoir pressure. This is the way the reservoir is filled. We must remember that the curve of Figure 630 shows available volume at atmospheric pressure, measured in cubic feet at atmospheric pressure, with pressures recorded above atmospheric pressure. The available volume at any other given constant back pressure is a matter of theoretic performance, a subject which we study later.

Let us correct the four curves of Figure 627 in all except their shifted positions to the right and left on the plat, assuming the previously designated points of each to be correct in respect to pressure. We thus obtain Figure 632.

The absurdity indicated by any curve to the right of the 1918 curve becomes apparent. Suppose the reservoir were completely lowered in pressure on the 1919 curve. We would have the conditions indicated by the point q, where 48.4 millions of cubic feet are available, only they are not available because of a zero pressure. Indeed this is another strange condition for a well.

For some unexplained reason these curves tend to creep over toward the right

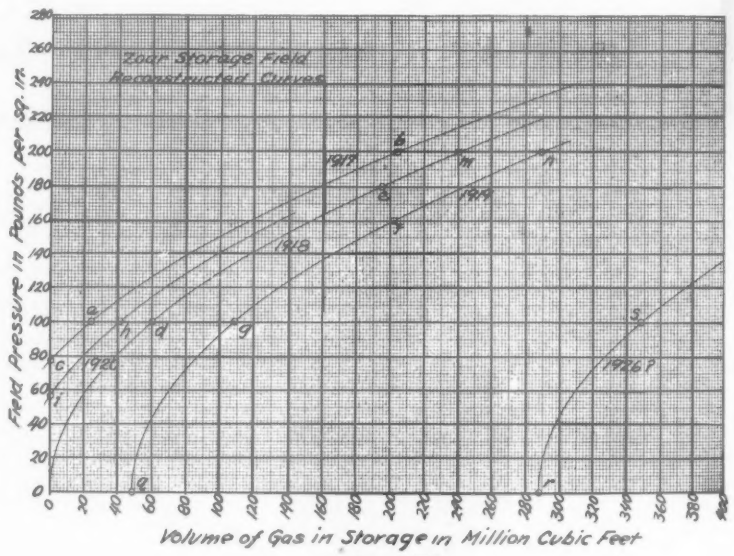

Figure 632

every year. It seems to be necessary to jerk them back into place repeatedly, as we saw in the case of the 1920 curve. The original drawing includes the 1921 and 1922 curves to the left of the 1918 curve, in the vicinity of the 1920 curve. Evidently a policy of making necessary annual corrections has been adopted. The curves must parade across the field of the plat to the tune of several millions of cubic feet of gas per year,—36 millions per year if we take the smaller amount represented by the distance between a and d as a fair measure. By eight years time, without the corrections, the curve should appear at least as far from the origin as the position shown by the 1926 curve. We would then have at least 288 millions of cubic feet of flowable gas which cannot flow by reason of zero pressure, a condition indicated by the point r.

633. What is the trouble? Why must the curves shift to the right every year? The facts are these: the gas enters the reservoir in, and is measured in, Volumetric Control; it leaves in Capillary Control, but is measured by a meter which has its formula or tables based upon Volumetric Control. In other words, it enters, it is measured on entering, and

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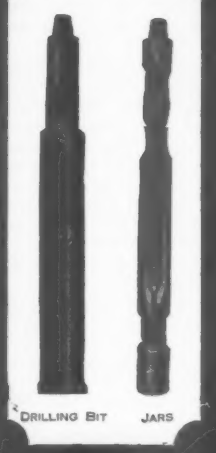
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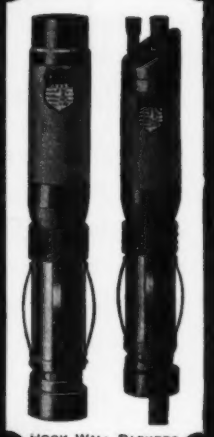
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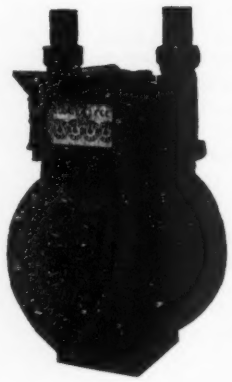

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it is measured on leaving, by the formula

$$Ve = K P^{1/2},$$

whereas it actually leaves by the formula

$$Ve = K P^{3/2}.$$

The difference in the exponents causes the parade and makes the annual corrections necessary. To give an example of the circumstances which arise let us refer again to the reconstructed curve of 1919 in Figure 632. Observe that the company sold gas from the reservoir during the winter of 1918-1919 until the pressure stood at 100 pounds. The point g at this pressure indicates a volume of 108.4 millions of cubic feet of gas remaining in the reservoir, but 60 millions for the point d was the true amount remaining. 48.4 millions of cubic feet were metered out without being accounted for from the records of the meter. Had the formula or tables for the outgoing meter been based upon the exponent for Capillary Control, the amount of gas accounted for in this winter would have superimposed g upon d. Presumably the consumers have their individual displacement meters for the measurement of the amounts they actually draw from the line. These meters operate correctly for either control; therefore we may assume that there is a considerable discrepancy between the flow record at the field and the total of records at the ends of the line for each year's operation.

634. These facts appear rather startling and perhaps difficult to believe. Nevertheless Capillary Control is a real and important factor in field operations. We must learn to treat with it properly as soon as possible. Thousands of our wells—gas wells and oil wells—are functioning in this control. It has upset our calculations for many years, and it has bewildered us in our judgment concerning the events which take place within our natural reservoirs.

In regard to meters let us say that this subject involves one of the most difficult principles in our treatise. The average engineer probably is inclined to scoff at the idea that a meter is in any way dependent upon the reservoir which is feeding it, but this is indeed the truth. Before considering the details of meter functions it is essential that we understand the secondary functions of this control. We must know what is happening within the reservoir during the course of production, and we must know particularly the relation between the potential pressure of the reservoir and the residual pressure. We made a study of this in our treatment of the two preceding controls; we are traveling slowly toward a like study in this control. When this is done we will consider the mechanics of meters, and their relation to the reservoirs behind them.

Storage of Fluid

635. We are omitting a thorough study of storage in natural reservoirs of Capillary Control for the reason that this subject belongs properly to the discussion on the secondary functions of the reservoir. We may state now, however, that these are the only safe reservoirs to use for this purpose. Every cubic foot of gas placed into them will be recovered. Some interesting facts concerning the possibility of storing oil will be brought to light.

Returning once more to the Zoar Field, we see that we can, at any time we choose, make an independent check upon the volume of gas within the reservoir. It is not necessary to rely upon a balance between incoming and outgoing quantities of gas. For this we need three readings:

(b) The pressure at the instant before filling operations begin,

(b) The proper measurement of the gas put into the reservoir, and

(c) The pressure at the instant after filling operations cease.

With these data we may proceed exactly as in Article 629. A consistent reservoir of this sort will prove to be excellent for the purpose of calibrating meters, testing their formulas, and constructing their tables, when they are to be used for reservoirs of this control. The accuracy of the reservoir is considerably greater than any accuracy we may hope to attain in our meters.

Equal Production and Pound Decline

636. In Volumetric Control we have Constant Production per Pound Decline law, and in Article 434 the statement was made to the effect that this law is merely a mode of expressing the relation shown by the formula

$$P = K\,Vo.$$

In Capillary Control the corresponding relation is expressed by the formula

$$P = K\,Vo^{1/2};$$

therefore it must be obvious that the law cannot hold in this control. But we can derive a law for the relations between pressure declined and volume produced which does hold for wells of this class. In order to do this we may advantageously consider again the law in Volumetric Control.

"For every unit of pressure declined, a constant number of units of volume have been produced, or, for every unit volume produced, the pressure has declined a definite and constant amount." This is the statement of the law as it is ordinarily given, but suppose we express the same fact in a different manner, and then proceed to develop a mathematical proof of the restatement.

"Equal quantities of fluid are produced for equal differences of pressure." Let

Vo_1 = volume of fluid in the Volumetric Control reservoir at some instant t_1,
Vo_2 = volume of fluid in the same reservoir at a later instant t_2,
Vo_3 = volume of fluid at a still later instant t_3,
Vo' = volume of fluid produced between the instants t_1 and t_2,
Vo'' = volume of fluid produced between the instants t_2 and t_3,
P_1 = pressure at the instant t_1,
P_2 = pressure at the instant t_2,
P_3 = pressure at the instant t_3.

According to the pressure-volume relation for Volumetric Control we may write the equations

$$Vo_2 = K P_2 \quad \ldots\ldots (1a)$$
$$Vo_2 = K P_2 \quad \ldots\ldots (2a)$$
$$Vo_1 = K P_1 \quad \ldots\ldots (3a)$$

wherein all K's are equal as in ideal performance. Subtract (2a) from (1a):

$$Vo_2 - Vo_3 = Vo'' = K (P_2 - P_3) \quad \ldots (4a)$$

and subtract (3a) from (2a):

$$Vo_1 - Vo_2 = Vo' = K (P_1 - P_2) \quad \ldots (5a)$$

Now divide (4a) by (5a):

$$V''/Vo' = P_2 - P_3/P_1 - P_2 \quad \ldots\ldots (6a)$$

In this equation the left-hand member expresses the ratio between the volumes produced, and the right-hand member shows the ratio between differences in pressures. When the terms in the numerators equal the terms in the denominators, we have the mathematical expression of the restated law; that is, when

$$P_2 - P_3 = P_1 - P_2,$$
$$Vo'' = Vo'.$$

It is interesting to note that equation (6a) holds whether the numerators are or not equal to the denominators. Therefore the more general statement of the law is to the effect that the ratio between volumes produced during any two periods of time is equal to the ratio between the differences of pressures for the two periods. These periods may or may not be equal in duration.

When the K's are not equal, as they may not be in theoretic performance, they must appear in the final equation. The law as stated does not hold, but it may be recast in such a manner as to hold even in this case. Thus we would obtain the most general expression of the law.

A New Law

637. If we were to trace backward through all the steps by which we finally arrive at a Constant Production per Pound Decline law, we would find at the bottom the law of constant acceleration. In as much as Volumetric Control possesses constant acceleration, such a law is possible. But acceleration in Capillary Control is not constant; it is parabolic. Therefore such a law is impossible. For reservoirs of Capillary Control we cannot say that equal quantities of fluid are produced for equal differences of pressures. However, if we will follow through steps corresponding to those of the preceding article, we may derive

a law which does hold for these reservoirs.

Take the same quantities Vo_1, Vo_2, Vo_3, etc., as before. According to the pressure-volume relation for the present control we may write the equations

$$Vo_3 = K P_3^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots (1b)$$
$$Vo_2 = K P_2^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots (2b)$$
$$Vo_1 = K P_1^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots (3b)$$

Subtract (2b) from (1b):

$$Vo_2 - Vo_3 = Vo'' = K (P_2^2 - P_3^2) \quad \ldots (4b)$$

and subtract (3b) from (2b):

$$Vo_1 - Vo_2 = Vo' = K (P_1^2 - P_2^2) \quad \ldots (5b)$$

No divide (4b) by (5b):

$$Vo''/Vo' = P_2^2 - P_3^2/P_1^2 - P_2^2 \quad \ldots (6b)$$

In this equation the left-hand member expresses the ratio between the volumes produced, and the right-hand member shows the ratio between the differences of squares of pressures. When the terms in the numerators equal the terms in the denominators, we have the mathematical expression of a new law which holds for reservoirs of Capillary Control. That is, when

$$P_2^2 - P_3^2 = P_1^2 - P_2^2,$$
$$Vo'' = Vo'.$$

Stated in words the law is: "Equal quantities of fluid are produced for equal differences of squares of pressures."

The two general laws may likewise be written for the present case.

A Test of the Law

638. In order to test this law against the Zoar Storage record we may take the three following pressures from Figure 630:

$P_1 = 200.0$, $P_2 = 158.1$, and $P_3 = 100.0$.

For the differences of squares we have

$$(158.1)^2 - (100.0)^2 = (200.0)^2 - (158.1)^2$$
$$\text{or } 15000 = 15000;$$

therefore we know that

$$Vo'' = Vo'.$$

This is correct, for the curve shows that

$$240 - 150 = 150 - 60$$

millions of cubic feet of gas.

This law is not in its most convenient form for the reason that it is almost impossible to select pressures whose differences of squares are equal. Instead of this one which we might designate the "equality" law, let us write a "proportionality" law from equation (6b) as follows:

"Proportional quantities of fluid are produced for the same proportional differences of squares of pressures.

Now we may select pressures at random. From the same curve take

$P_1 = 220.0$, $P_2 = 180.0$, and $P_3 = 120.0$.

The proportionality between the differences of squares is

$$(180)^2 - (120)^2/(220)^2 - (180)^2 = 9/8;$$

therefore

$$Vo''/Vo' = 9/8.$$

Observing that the curve shows

$$Vo'' = 108,$$

then $Vo' = 96$

millions of cubic feet of gas. The curve also shows the latter amount, proving that the law is properly stated.

Sums and Differences

639. The two terms in the right-hand member of equation (6b) may be factored, making it possible to write

$$Vo''/Vo' = (P_2 + P_3)(P_2 - P_3)/(P_1 + P_2)(P_1 - P_2).$$

Accordingly we may say that "proportional quantities of fluid are produced for the same proportional products of sums and differences of pressures." We only bother to give this law for analytical reasons. It shows us a very important principle which must be taken into consideration.

In the Constant Production per Pound Decline law for Volumetric Control it is immaterial what zero is used in measuring pressure; either absolute zero, atmospheric zero, or potential zero can be employed, for the reason that the difference between pressures is numerically the same in any case. For example,

114.7 − 64.7 pounds absolute
100.0 − 50.0 pounds atmospheric,

and say 75.0 − 25.0 pounds potential,

all represent a difference of 50.0 pounds. And this is also true for the differences between pressures in the last equation above, but it is certainly not true for the sums of pressures. This may be seen by writing

114.7 + 64.7 pounds absolute,
100.0 + 50.0 pounds atmospheric,

and 75.0 + 25.0 pounds potential,

where all represent decidedly different quantities. Considering the fact that our laws of delivery are always based upon the values of the functions in potential units, we see that the various laws above all those pertaining to Capillary Control —only hold when pressures are measured in potential units. Since the difference of squares is equal to the product of sums and differences, what is true for the one is true for the other.

A Substitute for the Laws

640. We have not given these laws because we think them convenient to use in engineering practice, but rather to emphasize a difference between Volumetric and Capillary Controls. We may, in fact, avoid the necessity of using them by taking advantage of the properties of the relative curves. The curved line of Figure 624 has the property of taking the exponents out of the equality and proportionality equations. Differences between squares are thus reduced to plain differences. Our problems in Capillary Control are reduced to the simplicity already experienced in Volumetric Control. We were not troubled with squares in Article 629.

Several previous attempts to modify the Constant Production per Pound Decline law from empirical data have failed, only because the analytical and geometrical relations between reservoir functions were not properly understood. If we take the data given in papers presented on the subject, and recast them according to the present principles for reservoirs of Capillary Control, the results will verify what we have here determined.

Many wells which we have thought were unreliable or inaccurate prove to be quite exact. When we have the right laws and the right formulas, we see how nicely the data and curves tell the story of the wells.

FUTURE POSSIBILITIES OF CREEK COUNTY

(Continued from Page 102)

the competency of the crystallines to transmit these forces. In the first place, the same type of folding (steep near point of origin, and rapid dying out westward) would be expected in the crystallines as in the case of sediments already mentioned. Such deformations would be reflected in the overlying sediments and should be found if they occur. To obtain a crumpling of the crystalline rocks by tangential compression would require forces much greater than are known to have been at work in the Ozarks. Gentle thrusts, however, would result in development only of broad arches and not in the formation of small local uplifts.

Such close folding as a result of tangential compression does occur, however, in the Ouachita-Arbuckle-orogenic element (Ouachita Mountains of Arkansas and Oklahoma with connecting Arbuckle and Wichita Mountains in Oklahoma.) In such case, however, thrusting comes from the wrong direction to explain structural features in Oklahoma and Kansas as a result of direct tangential movement. Neither is the axial direction of the Ozark uplift parallel with the direction of the buried hills of northern Oklahoma and Kansas.

Rotational Stress

Rotational stress transmitted to sediments by shearing in the basement complex. Comparatively little literature is to be found developing this theory, as applied to the interpretation of the origin of the Mid-Continent structures. One of the earliest was Fath[17] who set out to explain the origin of the faults and anticlines of the northern Mid-Continent area by this theory. Fath, in the preparation of a report on the Bristow Quadrangle[18] discussed the possible origin of en echelon

[17] Fath, A. E., The Origin of the Faults, Anticlines and Buried Granite Ridge of the Northern Part of the Mid-Continent Oil and Gas Field, U. S. Geol. Survey Professional Paper 128-C, 1920.

[18] Fath, A. E., Structure of the Northern Part of the Bristow Quadrangle, Creek County, Oklahoma, U. S. Geol. Survey Bull 661, pp. 69-99, 1918.

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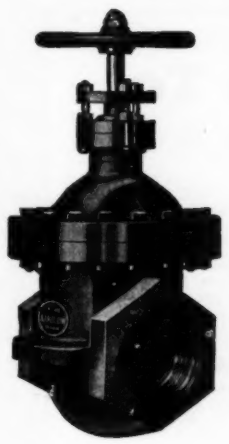

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faults in this region with R. H. Wood, who was then with the United States Geological Survey, working on the Hominy Quadrangle, immediately north of the Bristow Quadrangle, and the latter suggested tortional forces. Fath did not at that time think of an adequate source of those forces and this theory was not, therefore, advanced in this bulletin. Later, however, in United States Geological Survey Professional Paper 128-C, he took up the discussion of the origin of the Mid-Continent structural features. He noted first that the alignment of the en echelon fault zones, the major anticlines, and the Nemaha Ridge is essentially parallel. He noted also that the pre-Cambrian rocks are very competent, that the Cambrian, Ordovician and Mississippian rocks are competent but less so than the pre-Cambrian, that the Pennsylvanian rocks and Permian rocks are relatively incompetent. He states that the Ozark uplift had two phases: (1) late Mississippian or early Pennsylvanian and (2) post-Paleozoic. He states further that the Ozark uplift is the cause of the prairie plains monocline and that slight movements or readjustments took place during Pennsylvanian deposition intermittently. These he considers very significant. He observes the location and arrangement of the faults of this area and states that they originate from forces operating parallel with the direction of the en echelon line. He believes that the controlling forces must have been transmitted not by the sediments, which are incompetent, but by the crystalline basement rocks, which are amply competent. Horizontal movements, he thinks, in the basement rocks set up rotational stress in the overlying weaker sediments and these stresses resulted in the formation of en echelon faults. He thinks many fault planes occur at depth and disappear before reaching the surface and that faults which may be found at the surface increase with depth. He believes that some anticlines were formed by the change from a fault into a fold toward the surface. Other folds, he thinks, are due to vertical displacements of master faults in the basement rocks.

Reverse Displacements

Depressions he explains by reverse displacements. Thus, combined horizontal and vertical movement may produce both folding and faulting. Also he states that reverse movements at different intervals in the same place may compensate each other and produce greater folding in the upper than in the lower beds, as at the Cushing, Mount Pleasant and Shamrock Domes in the case of the Wheeler and Layton closures. Fath admits the weakness of his theories to explain (1) reverse dips against fault planes, (2) why some vertical displacement along major faults did not reach the surface at some places where sediments are not over 1,000 feet thick, and (3) divergence of some anticlinal axes from the direction which they would be supposed to take according to his theory. He explains the formation of the granite ridges as due to vertical movement along lines of weakness or master faults. This conforms with Moore's[19] hypothesis. In commenting upon Fath's work the authors wonder why he did not observe in the development of his tortional theory that at right angles to tension, causing the en echelon faults, there would also be compression. This is especially well shown by Mead[20] (see Figure 4).

Heald[21] rather follows after Fath in favoring faulting along major zones of weakness with attendant secondary effects as being the cause of the origin of deformation in the northern Mid-Continent area.

Just[22] also explains the deformation of this region as originating from rotational

[19]Moore, R. C., Geologic History of the Crystalline Rocks of Kansas, Am. Assoc. Pet. Geol. Bull. Vol. 2, pp. 105-106, 1918.
[20]Mead, W. J., Notes on the Mechanics of Geologic Structure, Jour. Geol. Vol. 28, p. 505, 1920.
[21]Heald, K. C., Discussion of Powers Article, Bull. Geol. Soc. Am. Vol. 36, pp. 379-392, 1925.
[22]Just, Evan, The Origin of the Structural Features in Northeastern Part of the Mid-Continent Oil Field. An unpublished Master's thesis submitted at Wisconsin University, 1925.

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stresses set up in post-crystalline sediments by horizontal movements along master faults in the basement complex. Like his predecessors, he fails to offer an explanation for the origin of the major movements. He goes one step farther than Fath, however, in explaining many of the small folds associated with the en echelon faults as due to compression developed by the rotational stress.

Origin of Major Forces

Foley[23], working independently, coincides essentially with Just in discussing the immediate causes of the origin of the faults in Creek and Osage Counties, Oklahoma, but he goes farther and attempts to discover the origin of the major forces causing the development of the rotational stresses. He performed experiments in which he covered two wooden blocks with wax and moved one block horizontally relative to the other, developing a master shear plane, above which the wax was deformed. This caused in the wax faulting and folding of the enechelon type. He thinks the major forces were brought about by a thrust from the Ozarks toward the Kansas granite ridge, using the latter as a buttress, and explained the granite ridge as probably originating from forces coming from farther west, possibly from the Rocky Mountains.

If one considers, however, that the thrusting forces in the region between the granite ridge and the Ozarks came from the uplift of either one or the other or both of these elements, it does not seem possible to develop sufficient shortening in the upper sediments to account for any appreciable deformation even if the latter should be competent to transmit these forces. On the other hand, if the thrust is transmitted through the crystallines from one point to another, it does not seem possible for any one small element (ridge) in the crystallines to act as a buttress to movements in the crystalline mass itself. Also, according to his theory, his master shear zones would tend to follow a northwest-southeast direction as well as the direction shown by Fath. The former shear zones would develop en echelon faults at right angles both in direction and trend with those found on the structure map. Such are not known to occur in any appreciable amount.

Deformative Forces

For reasons set forth in preceding paragraphs the authors believe that deformative forces other than gravity must be discovered to explain the types of deformation found particularly in northeastern Oklahoma and Kansas. Logically one should look for the evidence of these forces in the areas of greatest deformation in this region and trace the effect of that deformation in the adjacent areas into which these forces moved. The area of greatest deformation near here is the Ouachita portion of the Ouachita-Arbuckle orogenic element in the southeastern part of Oklahoma and the northwestern part of Arkansas.

A study of the structure of the North American continent quickly discloses a series of lines of weakness in both late and early rocks, with a great predominence in direction favoring north and south lines. Lines of weakness such as folding or faulting where uplift occurs, even though modified by erosion, tend to cause the formation of topographic features which tend to follow straight lines. With the exception of cuesta topography and dike topography, erosion features over old lines of weakness are the only types which follow straight lines. Cuesta topography is formed over tilted sediments where harder beds resist erosion and tend to form ridges with gentle dip slopes and steep slopes in the opposite direction caused by undercutting. This type of structure does not necessarily presuppose an igneous basement. Dikes, resisting erosion, especially where cutting much less resistant sediments, frequently form straight ridges. The dike rock, however, was originally injected into fault or joint openings and its presence presupposes earlier lines of weakness and really fall into the first class. Cuestas, also, fre-

[23]Foley, L. L., The Origin of the Faults in Creek and Osage Counties, Oklahoma, Am. Assoc. Pet. Geol. Bull., Vol. 10, pp. 293-303, 1926.

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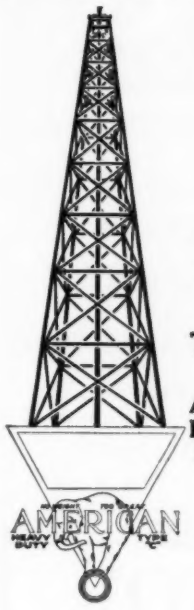

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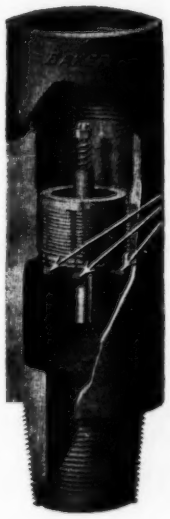

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talline on one side or the other of the shear zones, especially at points closer to the region of thrust. These vertical movements would give rise to folds and faults in the overlying sediments with lines corresponding to the direction of the shear zones. These features are apt to be larger and more prominent than the en echelon faults and smaller anticlines caused by rotational stresses over the shear zones. Faults caused by vertical movements in the basement rocks along shear zones would tend to diminish in displacement toward the surface, sometimes even resolving themselves into folds with axes parallel with the line of the underlying shear.

Formation of Folds

Besides the series of en echelon faults and folds, there are in this region folds whose axes closely parallel the direction of en echelon faults. These can easily be formed by the change of such faults upward into slumps or dips. A modification of the en echelon type of fold (northeast-southwest axis) by folding over buried en echelon (northwest-southeast) may result in any number of types of irregular folds. The en echelon folds, it must be borne in mind, are compression folds, while the plunging anticlines caused by slumping against or over en echelon faults are tensional in character.

Sometimes (see Fath's structure map of the Bristow Quadrangle) D-shaped closed synclines are found with the straight side formed by a normal fault. These synclines are always on the down-thrown side of the fault. The amount of throw in a normal fault is always greatest in the middle and diminishes to extinction toward its ends. Such closed synclines are, therefore, formed by the simple slumping of the down-thrown element. Sometimes these occur directly opposite D-shaped closed anticlines on the opposite side of the fault. This type of structure is impossible to explain by any other means, such as sedimentary compaction. (See Figure 1.)

It is clear to be seen that under ideal conditions the amount of throw in a tension fault in sediments caused by horizontal movement in basement rocks along shear zones, will be directly related to (1) the amount of horizontal movement tending to stretch the sediments in the direction of elongation of the strain elipsoid, and (2) the thickness of the sedimentary prism. Assuming, therefore, a fixed amount of horizontal movement at a given point, the amount of vertical readjustment due to stretch would increase upward from the basement rocks. This readjustment may take the form of a simple normal fault rising from the basement rocks upward with increasing throw toward the surface, or it might be changed by passage through more plastic rocks such as shales into slump or tension folds.

Balance Each Other

On the other hand, since both the tensional and compressional readjustments following the movement in the basement rocks along the shear zones are local in character and must balance each other more or less, and the incompetency of the sediments does not permit the transmission of shear from the crystallines to the surface, the mild resistance of friction in the more plastic sediments and the lateral slip of the sedimentary beds will tend to readjust these beds so as to mask effects of the stresses set up by basement shear. If a thick enough sediment prism overlay the crystalline shear zone, therefore, it is conceivable to expect tension faulting to increase in throw upward until a point is reached where horizontal (possibly rotating) movements in the beds would begin to diminish the vertical readjustments. From this point vertical readjustments would decrease upward until at some point horizontal movements between beds would entirely mask lower structures and no disturbance would result. This accounts for the fact that many en echelon faults decrease with depth, often disappearing by the time the fault has reached the Wilcox horizon. This fact has been called to the attention of the authors by Richard Hughes and others, as applicable to Seminole and

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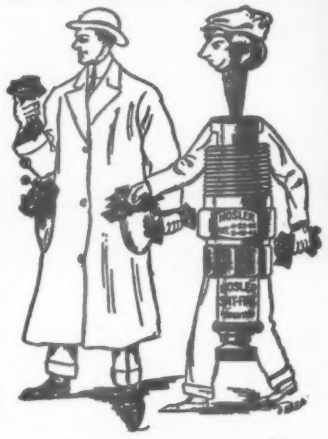

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quently are eroded into very irregular lines by the more active work of some stream systems than others crossing them, and consequently would not tend to form straight ridges for great distances without some considerable local changes of direction. Therefore, where one finds straight-line topographic features, he naturally expects to discover that this topography is controlled by structure showing movements along previous lines of crustal weakness.

Lines of Weakness

Some of the prominent lines of weakness in the United States are as follows: California Coast ranges, Sierra Nevada fault block, majority of basin ranges, faults and folds of the high plateaus, Rocky Mountains, Ozarks, Illinois-Wisconsin flexure, Cincinnati arch, and the Appalachian Mountain systems. Closely paralleling these is the buried granite ridge of Kansas, sometimes called the Nemaha Mountains, which extends from northern Oklahoma across Kansas to the southern part of Nebraska. In reality this ridge falls about half way in direction between that of the Appalachian region and that of the Rocky Mountains. This granite ridge is, of course, minor in character to those first mentioned. Also, all across the country are thousands of minor lines of weakness which give the continent a "grained" character as mentioned by Van der Gracht[24].

Upon the surface of the pre-Cambrian rocks in the Mid-Continent region are deposited sediments of Paleozoic and later age of varying thickness. It is reasonable to suppose that the pre-Cambrian rocks had been much disturbed prior to Paleozoic deposition, and that most, if not all, of the post-Cambrian disturbances of the Mid-Continent area took place following lines of weakness developed in pre-Cambrian time. During, and even subsequent to Paleozoic time, orogenic activity took place (especially around the eastern and southern sides of the northern Mid-Continent region) forming the Ozarks and the Ouachita-Arbuckle orogenic elements and forming the prairie plains monocline. The seat of this activity, as evidenced by the intense folding in the Ouachita Mountains, appears to be in that region, lying to the south and southeast of the Kansas-northern Oklahoma portion of the Mid-Continent area.

Direction of Forces

The direction of the forces originating in the Ouachita region, as related to the northern Oklahoma-Kansas region, appears to be northward, (See Figure 4), with the amount of force dying out westward from the Ouachita Mountains toward the Arbuckles and Wichitas. The resultant of this thrust would be rotational in character and would be west of north. This thrusting movement, acting upon the basement rocks, would result in reopening lines of weakness in these rocks in northern Oklahoma and Kansas which already had a northeast direction about at 45 degrees with the resultant thrust mentioned above. The thrusting set up a horizontal differential shearing in the crystallines which would follow these lines of weakness. The amount of shearing would tend to diminish westward and northward from the Ouachita region.

The effect of this shearing would be to set up in the overlying incompetent beds rotational stresses which would result in the formation of dome-type compression anticlines and tension faults. These folds and faults would follow the lines of shear and be related directly to them. The folds would tend to have long axes in a northeast-southwest direction and the direction of the faults would tend to be in a northwest-southeast direction, about at right angles with the anticlinal axes, and both at about 45 degrees with the lines of shear. (For illustration of the principles applying to this type of structure, see Figures 4 and 5).

While in the crystalline rocks the dominant movement will be essentially horizontal, there will doubtless be some raising or lowering of the surface of the crys-

[24]Van der Gracht, W. A. J. M., Discussion of Foley's paper, Bull. Am. Assoc. Pet. Geol., Vol 10, p. 302, 1926.

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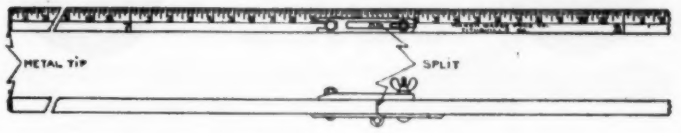

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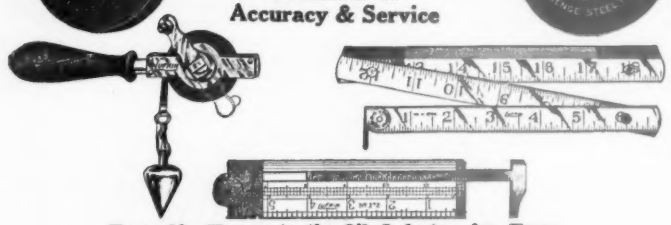

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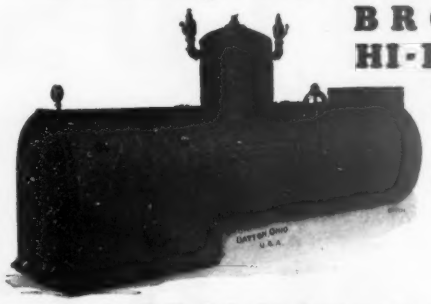

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adjacent counties. These geologists have mentioned, also, the continuance of northeast-southwest faults in the same region, mentioning the fact that they appear to increase in throw with depth. These latter faults are explained in an earlier paragraph.

Thrusting Component

In the case of the en echelon type of folds, formed by the compressional elements of rotational stresses, the most active forces are set up right at the contact of the sediments with the basement rocks where the horizontal movement is greatest. In the Creek County region, as elsewhere in this part of the Mid-Continent area, the thrusting component set up by the shearing of the basement rocks is from the southeast side. This would result in steeper anticlinal dips on that side of the axis and gentler on the other. This would cause the formation of asymmetrical (or lop-sided) folds, as shown in Figure 5, which causes the axial plane of the anticline to plunge northwestward. This axial plunge is so great that in some cases folds of this type have their high point on the Wilcox sand as much as a quarter of a mile northwest of the axis of the surface anticline. This lack of symmetry is notably absent in the larger anticlines following the direction of the shear zones and caused by direct vertical movements, and is not noticeable in the slump folds due to faulting.

Where either vertical movements in the basement rocks or rotational stresses caused by horizontal shearing of the basement crystallines affect the overlying sediments in uplifting them periodically during sedimentation, it is conceivable that the sediments would be deposited thinner over the uplifted portions and the result would be an increase in the sedimentary intervals away from the structural axes. (See Figure 6.) This would tend to make the deeper beds in the anticlines show steeper structures than the beds found toward the surface. This would further emphasize the same effect (shown in Figure 4) due to greater compression of the folds near the basement rocks by rotational compression stresses, in the case of the en echelon type of folds. On the other hand, especially in the case of vertical movements in the basement rocks transmitted to the overlying sediments, it is conceivable to expect occasional reverse or reactionary movements causing the reverse condition to take place, as in the case of the Cushing structure, already cited.

Thrust Faults

This covers the discussion of all structural features of Creek County, with the exception of the one thrust fault already mentioned. The direction of this thrust fault is closely parallel with that of the axis of the en echelon type of fold and roughly at right angles with the direction of the en echelon faults. This only adds to the proof of compression forces set up by the rotational stresses already described. The relative absence of these thrust faults proves the incompetency of the sediments of this region, where thrusts result in folding more than in overthrust faulting.

(To Be Continued)

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(Continued from Page 138)

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The main entrance to the refinery is through an arched gateway in a clock tower located between the new office building and the new laboratory building located on Post Road which is the main thoroughfare highway in the district.

The layout of the new office is a very neat arrangement combining beauty with utility. In this office building space is provided for the Superintendent, E. A. McCadden; Assistant Superintendent, John Grace; Chief Clerk, C. G. Hankins, a general office, a drafting room, a vault for the storage of records and a room for telephone and telegraph operators. In the telephone and telegraph room will be located the telephone exchange which controls telephone communication to and from all parts of the plant. The telegraph wires entering this room make possible instant teleghaphic communication with every point in the Pure Oil Co. over Pure Oil Co. owned and leased wires.

In the laboratory, space is provided for the resident chemist, analytical laboratory, light oil testing room, heavy oil testing room, flash rooms, bottle washing rooms and sample storage and material storage rooms. The inside walls of the laboratory building are of glazed tile. These tile walls in addition to making the walls proof against damage by fire, can be easily cleaned and made to have a neat appearance at all times.

All of the buildings in the plant are of brick construction with steel roof trusses and purlins. The roofs are of transite which presents a white fireproof surface to the elements. All of the door frames, doors, and window frames are of steel. Absolutely no inflammable materials are used in any of the construction. The style of the buildings is distinctively Pure Oil since it is the same

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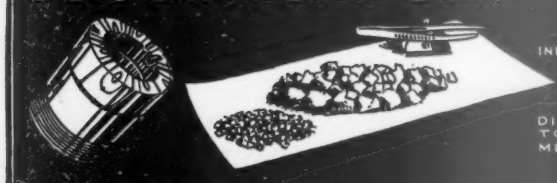
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style as used in all of the other recently constructed buildings at the other Pure Oil Co. refineries.

All of the units and buildings are so laid out that ample room is left everywhere for future extension. It is possible to double or treble the capacity of any part of the plant without disturbing any of the present units.

For fuel the refinery is at present consuming fuel oil and residue gas from the gas recovery plant, but many of the furnaces are so equipped that they can consume coal if this fuel should become economical.

LEASES ON ACREAGE INSTEAD OF NUMBERS

By Charles E. Kern

WASHINGTON, D. C., July 10.—Regulations promulgated by the Deparment of the Interior through the General Land Office, interpret Section 27 of the General Leasing Law of February 25, 1920, as amended by the act of April 30, 1926, by putting permits or leases anyone may hold on various minerals on an acreage instead of a number basis.

Under the leasing act, no person, association or corporation could hold more than one permit or lease on any one geological structure nor more than three such permits or licenses in a state. Under the leasing law as amended, a person, association or corporation is limited to a total of 7,680 acres of oil or gas permits or licenses in any one state and to 2,560 acres within the geological structure of the same producing oil or gas field.

DEATHS IN CANADA

CHATHAM, Ont., July 10.—After a six years' illness William Henry Mandeville died recently at Petrolia, aged 60. He was employed in the oil business at Inwood, Oil Springs and Sutorville before coming to Petrolia 25 years ago to work for the late J. H. Fairbank as an oil producer. Ten years ago he took a position with the Canadian Oil Refineries, Ltd., at Petrolia.

Edwin Wigle, for many years prominent in the oil and gas business, died recently in his sixtieth year. He was largely instrumental in bringing about the development of the Leamington oil pool in 1902, being associated with Capt. Edward Winter of Leamington, and together they organized the Leamington Oil & Gas Co. with Mr. Wigle as vice president and Captain Winter managing director. The Leamington Co. continued in business for 18 years, being absorbed by the Union Natural Gas Co.

TO USE AMARILLO GAS

SLATON, Tex., July 10.—A gas line will be laid from Amarillo, 150 miles, into the heart of the plains by A. J. McMahan, it was announced when the city commission of Slaton granted McMahon and his associates a franchise to bring natural gas into Slaton. Lubbock has granted the company a franchise, and other towns along the line have agreed to do so. Gas will be retailed in Slaton at the same price it is sold in Dallas. Industrial rates will be considerably cheaper as the amount of consumption increases. W. W. Graves, speaking for McMahon, says he expects to begin the laying of the pipeline by August 1; the franchise specifies that the company must be in position to furnish gas for industrial and domestic purposes by January, 1927.

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Foamite-Childs Corp.

Engineers—Oil Buildings—
Austin Co.
International Derrick & Equipment Co.

Engineers—Oil Treating—
Barnickel, Wm. S., & Co.
National Gas Products Co.

Engines—Crude Oil—
Continental Supply Co.
Western Machinery Co.

Engines—Diesel—
Bessemer Gas Engine Co.
Busch-Sulzer Bros. Diesel Engine Co.
Foos Gas Engine Co.
McIntosh & Seymour Corp.
Western Machinery Co.
Worthington Pump & Machinery Corp.

Engines—Drilling—
Ajax Iron Works
Beaver Manufacturing Co.
Bessemer Gas Engine Co.
Bovaird & Seyfang Mfg. Co.
Brownell Co., The
Buda Co.
Buffalo Gasolene Motor Co.
Clark Bros. Co.
Climax Engineering Co.
Franklin Valveless Engine Co.
Hercules Motor Corp.
Fattin Bros. Co.
Power Mfg. Co.
Republic Supply Co.
Titusville Iron Works Co.

Engines—Gas—
Beaver Manufacturing Co.
Bessemer Gas Engine Co.
Bruce-MacBeth Engine Co.
Buda Co.
Buffalo Gasolene Motor Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Climax Engineering Co.
Continental Supply Co.
Cooper, C. & G., Co.
Emsco Derrick & Equipment Co.
Foos Gas Engine Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hope Engineering & Supply Co.
Ingersoll-Rand Co.
International Supply Co.
Jones, S. M., Co
Marion Mch. Fdy. & Supply Co.
Miller Improved Gas Engine Co.
National Supply Co.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Titusville Iron Works Co.
Waukesha Motor Co.
Western Machinery Co.

Engines—Gasoline—
Beaver Manufacturing Co.
Buda Co.
Buffalo Gasolene Motor Co.
Continental Motors Corp.
Fairbanks-Morse & Co.
Hercules Motor Corp.
International Harvester Co. of America.
Waukesha Motor Co.
Western Machinery Co.

Engines—Oil—
Bessemer Gas Engine Co.
De La Vergne Machine Co.
Fairbanks-Morse & Co.
Frank Valveless Engine Co.
International Harvester Co. of America.
Ingersoll-Rand Co.
McIntosh & Seymour Corp.
National Supply Co.
Oil Well Supply Co.
Power Mfg. Co.
Reid, Joseph, Gas Engine Co.
Western Machinery Co.

Engines—Semi-Diesel, Oil—
Chicago Pneumatic Tool Co.

Engines—Steam—
Ajax Iron Works
Frick-Reid Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.

Evaporators—
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.

Extinguishers—Fire—
Foamite-Childs Corp.

F

Fabricators for Gasoline Plants and Refineries—
National Gas Products Co.
Stearns-Roger Mfg. Co.

Filters—Oil—
Burt Mfg. Co.

Fishing Tools (See Drilling and Fishing Tools)—

Fittings—Dropped Forged Steel—
Vogt, Henry, Machine Co.

Fittings—Forged Steel
Central Forging Co.

Fittings—Malleable & Cast Iron—
Bovaird Supply Co.
Crane Co.
Frick-Reid Supply Co.
Walworth Co.

Fittings—Pipe—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.
Gaso Pump & Burner Mfg. Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Kennedy Valve Mfg. Co.
Metric Metal Works.
Oil Well Supply Co.
Reading Steel Casting Co.
Republic Supply Co.
United Iron Works, Inc.
Victaulic Co. of America.
Walworth Co.

Fittings—Steel—
Dayton Pipe Coupling Co.
Kerotest Mfg. Co.
Ohio Steel Foundry Co.
Walworth Co.

Flanges—Brass, Iron and Steel—
Jefferson Union Co.
Metric Metal Works.
Walworth Co.

Flange Unions—
Gaso Pump & Burner Mfg. Co.
Wheatley Bros. Machine Works

Flashlights—
National Carbon Co.

Floating Roofs and Decks—
Chicago Bridge & Iron Works.

Floodlights—
Pyle-National Co.

Forging Billets—
Andrews Steel Co.
Harrisburg Pipe & Pipe Bending Co.
Heppenstall Forge & Knife Co.

Forgings—
Champion Machine & Forging Co.

Fuel Oil (See Oil—Fuel)—

Fuller's Earth—
Sinclair Refining Co.

G

Gas Holders—
Chicago Bridge & Iron Works.

Gaskets—
Garlock Packing Co.
McCord Radiator & Mfg. Co.

Gaskets—Fibre—
Durabla Mfg. Co.

Gas Masks & Safety Appliances—
Mine Safety Appliance Co.

Gasoline—
Berry's, James B., Sons Co.
Crown Central Petroleum Co.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.

Gasoline—Natural—
Chestnut & Smith Corp.
National Gas Products Co.
Skelly Oil Co.
Warren Petroleum Co.

Gasoline Plant Equipment—
Bessemer Gas Engine Co.
Clark Brothers Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
National Gas Products Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.
Widdell Engineering Co.

Gas Regulator Casinghead—
Davis, G. M., Regulator Co.
National Gas Products Co.

Gas Scrubbers—
National Gas Products Co.
Newton Process Mfg. Co.

Gauge Glass—High Pressure—
Durabla Mfg. Co.

Gauge Poles—
Marsh Gauge Pole Co.

Gauges—Automatic Tank—
Brooks Engineering Co.

Gauges—Draft—
Brown Instrument Co.

Gauges—Pressure and Vacuum—
Bristol Co.
Brown Instrument Co.
Equitable Meter & Mfg. Co.
Metric Metal Works.

Gauges—Test—
Equitable Meter & Mfg. Co.
Metric Metal Works.

Gear Driven Pumps (See Pumps)

Gears—Cut—
Nuttall, R. D., & Co.

Gears—Reduction—
Emsco Derrick & Equipment Co.
Nuttall, R. D., & Co.

Gears—Reverse—
Emsco Derrick & Equipment Co.

Generators—
Westinghouse Electric & Mfg. Co.

Generators—Acetylene—
Oxweld Acetylene Co.

Generators—Turbine—
Moon Manufacturing Co.
Pyle-National Co.
Westinghouse Electric & Mfg. Co.

Glassware—Chemical for Laboratory Use—
Illinois Glass Co.

Governors—
Equitable Meter & Mfg. Co.
Gardner Governor Co.

Governors—Boiler Feed—
Chaplin-Fulton Mfg. Co.
Fisher Governor Co.

Grey Iron Castings (See Castings)

H

Hammers—Chipping and Caulking Pneumatic—
Chicago Pneumatic Tool Co.

Hammers—Riveting Pneumatic—
Chicago Pneumatic Tool Co.

Hangers—Iron and Steel—
Continental Supply Co.
Dodge Mfg. Corp.

Hangers—Tubing—
Hercules Tool Co.

Hatches—Gauges and Thief—
Oil Conservation Engineering Co.

Heat Exchangers—
Carbondale Machine Co.
Griscom-Russell Co.
Hope Engineering & Supply Co.
National Gas Products Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.

Heat Exchangers—Fluid—
Braun, C. F., & Co.
Ross Heater & Mfg. Co., Inc.

Hoists—Pneumatic, Geared and Universal—
Chisholm-Moore Mfg. Co.
Yale & Towne Mfg. Co.

Hoists—Portable—
Chisholm-Moore Mfg. Co.
Ford Chain Block Co.
Sullivan Machinery Co.
Wright Mfg. Co.
Yale & Towne Mfg. Co.

Hooks for Rods and Tubing—
B. & A. Specialty Co.
Dunn Mfg. Co.

Hose—
Fenwick-Reddaway Mfg. Co.

Hose—Drillers—
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Hose—Oil Suction and Discharge
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Hose—Rubber—
Goodyear Tire & Rubber Co.
United States Rubber Co.

Hypochlorite of Lime—
Mathieson Alkali Works, Inc.

I

Injectors—
Penberthy Injector Co.

Inspectors—Pipe—
Hunt, Robert W., Co.

Insulation Materials—
Celite Products Co.
General Insulating & Mfg. Co.
Johns-Manville, Inc.

Insurance—Fire—
Oil Insurance Association

Insurance—Tornado—
Oil Insurance Association.

Iron—Ingot—
American Rolling Mill Co.

J

Jacks—Hydraulic—
Bridgeport Machine Co.

Jacks—Lifting—
Templeton, Kenly & Co., Ltd.

Jacks—Pumping—
American Mfg. Co. of Texas.
American Wells Works.
Bessemer Gas Engine Co.
Braden Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Norris, W. C.
Spang & Co.

Jars—
Arbon, Paul, & Co.
Bridgeport Machine Co.
Spang & Co.

Jar Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

K

Kerosene—
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.

L

Lacquers—
Arco Company, The
Sherwin-Williams Co.

Lanterns—Electric—
Delta Electric Co.

Lead and Mixed Metal Products—
Eagle-Picher Lead Co.

Lead in Oil—
Eagle-Picher Lead Co.
National Lead Co.

Lead Wool and Containers—
Eagle-Picher Lead Co.

Lighting Equipment—
Pyle National Co.
Westinghouse Electric & Mfg. Co.

Litharge—
Eagle-Picher Lead Co.
National Lead Co.

Loaders—Trucks—
Barber-Greene Co.

Long Distance Telephone—
American Telephone & Telegraph Co.

Lubricating Devices—
McCord Radiator & Mfg. Co.

Lubricators—
Ajax Iron Works.
Lunkenheimer Co.

Lubricators—Force Feed—
Hills-McCanna Co.
Manzel Brothers Co.
McCord Radiator & Mfg. Co.

M

Machine Tools—
Ryerson, Jos. T., & Sons, Inc.

Manholes—Tank—
Brooks Engineering Corp.

Manifolds—
Reid, Joseph, Gas Engine Co.

Meters—Gas—
Equitable Meter & Mfg. Co.
Foxboro Co., Inc.
Metric Metal Works.
Pittsburgh Meter Co.
Roots, P. H. & F. M., Co.
Westcott & Greis.

Meters—Electric—
Brown Instrument Co.

Meters—Gasoline—
Pittsburgh Meter Co.

Meters—Oil—
Pittsburgh Meter Co.

Molded Goods—Rubber—
Goodyear Tire & Rubber Co.

Motors—Electric—
Fairbanks-Morse & Co.
Westinghouse Electric & Mfg. Co.

Motors—Gasoline (See Engines—Gasoline)—

N

Naphtha—
Pure Oil Co.

Natural Gasoline (See Gasoline—Natural)—

Natural Gasoline Plant Equipment
Campbell, J. A.
Cooper, C. & G. Co.
Griscom-Russell Co.
National Gas Products Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.
Smith Separator Co.
Westcott & Greis.

Nitrogen—
Linde Air Products Co.

Nozzles—Spray—
Power Plant Equip. Co.

O

Oil and Gas Pipe Line Construction—
Hope Engineering & Supply Co.

Oil Burners (See Burners—Oil)—

Oil Field Equipment—
Baker Casing Shoe Co.
Bridgeport Machine Co.
Gaso Pump & Burner Mfg. Co.
International Derrick & Equipment Co.
Iron King Mfg. Co.
Kaw Steel Construction Co.
National Supply Co.
Oil Well Supply Co.
Parkersburg Machine Co.
Parkersburg Rig & Reel Co.
Reed Roller Bit Co.
Regan Forge & Engineering Co.
Reid, Joseph, Gas Engine Co.
Republic Supply Co.
Simplex Equipment Co.
Trumble Gas Trap Co.

Oil—Fuel—
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Magnolia Petroleum Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The

Oil—Gas—
Crown Central Petroleum Corp.
Gulf Refining Co.
Pure Oil Co.
Sinclair Refining Co.
Texas Company, The

Oil—Lubricating—
Barnsdall Refining Co.
Berry's, James B., Sons Co.
Crown Central Petroleum Corp.
Empire Refineries, Inc.
Gulf Refining Co.
Humble Oil & Refining Co.
Magnolia Petroleum Co.
Pennzoil Co.
Pure Oil Co.
Sinclair Refining Co.
Skelly Oil Co.
Texas Company, The

Oil—Tractor—
Barnsdall Refining Co.
Gulf Refining Co.
Pennzoil Co.
Pure Oil Co.
Skelly Oil Co.

Oiling Devices—
Lunkenheimer Co.

Oil Meters (See Meters)—

Oil Piping Equipment (See Fittings)—

Oil Reclaiming Process—
Barnickel, Wm. S., & Co.
Houston Pump & Supply Co.

Oil Well Cementing—
Halliburton Oil Well Cementing Co.

Oil Well Tools—
D & B Pump & Supply Co.
Hinderliter Tool Co.
Reed Roller Bit Co.
Titusville Forge Co.
U. S. Tool Co.

Over Shots—
Reed Roller Bit Co.
Regan Forge & Engineering Co.

Oxygen—
Linde Air Products Co.

P

Packer Release—
Acme Fishing Tool Co.

Packers—
Goodyear Tire & Rubber Co.
Guiberson Corp.
Larkin & Co.
Layne & Bowler Co.
Meier, E. C., Lubricating Co.
Oil Well Supply Co.
Regan Forge & Engineering Co.
Spang & Co.
United States Rubber Co.

Packing—
Crane Packing Co.
Durabla Mfg. Co.
Garlock Packing Co.
Goodrich, B. F., Rubber Co.
Imperial Belting Co.
Johns-Manville, Inc.

Packing—Metallic—
Crane Packing Co.

Paint Guns—
Binks Spray Equipment Co.

Painting Equipment—Mechanical
Brown Instrument Co.
Matthews, W. N., Corp.

Paints—
Aluminum Co. of Ameica
American Asphalt Paint Co.
Arco Company, The
Cook Paint & Varnish Co.
Detroit Graphite Co.
Dixon, Joseph, Crucible Co.
Du Pont de Nemours, E. I. & Co., Inc.
Eagle-Picher Lead Co.
Eclipse Paint & Mfg. Co.
Hill, Hubbell & Co.
National Lead Co.
Sherwin-Williams Co.
St. Louis Surfacer & Paint Co.

Pipe—Cast Iron—
Greenspon's Jos., Sons Iron & Steel Co.
International Supply Co.
U. S. Cast Iron Pipe & Fdy. Co.

Pipe—Lead Chemical and Antimonial—
Eagle-Picher Lead Co.

Pipe—Steel—
Central Tube Co.
Continental Supply Co.
Greenspon's Jos., Sons Iron & Steel Co.
Jarecki Mfg. Co.
Kellogg, M. W., Co.
Murray Tool & Supply Co.
National Supply Co.
National Tube Co.
Republic Iron & Steel Co.
Ryerson, Jos. T., & Sons, Inc.
South Chester Tube Co.
Spang Chalfant & Co., Inc.
Superior Tube Co.
Wheeler Steel Corp.

Pipe—Wrought Iron—
Byers, A. M., Co.
Frick-Reid Supply Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Oil Well Supply Co.
Reading Iron Co.
South Chester Tube Co.
Superior Tube Co.

Pipe and Nipple Threading Machines—
Bignall & Keeler Machine Works.
Cox & Sons Co., The
Landis Machine Co.
Ryerson, Jos. T., & Sons, Inc.

Pipe Clamps (See Clamps—Pipe)

Pipe Grips—
Larkin & Co.

Pipe Headers—
National Tube Co.
Newton Process Mfg. Co.

Pipe Line Coatings—
Hill, Hubbell & Co.

Pipe Line Construction Tools—
National Transit Pump & Machine Co.

Pipe Line Equipment—
Wheatley Bros. Machine Works
Gaso Pump & Burner Mfg. Co.

Pipe Screwing Machines—
Buckeye Traction Ditcher Co.

Pipe Straightening Machines—
W-K-M Co., Inc.

Pipe Suspension Device—
Stearns-Roger Mfg. Co.

Pipe Threaders—Power—
Williams Tool Corp.

Pipe Tools—
Armstrong Brothers Tool Co.
Nye Tool & Machine Works
Walworth Co.

Piping—Fabricated—
Midwest Piping & Supply Co.

Piping—Hard Rubber—
United States Rubber Co.

Piping—Steel & Iron—
Crane Co.
Greenspon's, Jos., Sons Iron & Steel Co.
Power Piping Co.

Pistons—
Guiberson Corp.
Heppenstall Forge & Knife Co.

Pistons—Expansion—
Wilson Oil Tools Corp.

Pistons—Slush Pump—
Guiberson Corp.

Plugs—Bottom Water—
Guiberson Corp.

Pre-Heaters—
National Gas Products Co.
Newton Process Mfg. Co.
Ross Heater & Mfg. Co., Inc.

Preservatives—Asphalt—
American Asphalt Paint Co.

Pulleys—Wood, Iron and Steel—
Continental Supply Co.
Dodge Mfg. Co.

Pulling Machines—
Iron King Mfg. Co.
National Supply Co.
Safety Pulling Machine Co.

Pumpers—Long Stroke—
Farley Machine Co.

Pumping and Pulling Motors—Electric—
Westinghouse Electric & Mfg. Co.

Pumping Equipment—
American Well Works.
Axelson Machine Co.
Bryson Jackson Pump Mfg. Co. Inc.
D & B Pump & Supply Co.
Farley Machine Co.
Goulds Pumps, Inc.
Jones, S. M., Co.
Myers, F. E., & Bros. Co.
Northrup Equipment Co.
Oil Well Supply Co.
Prescott Co.
Ratigan, J. P., Co.
Waukesha Motor Co.

Pumping Gear Units—
Nuttall, R. D., & Co.

Pumping Powers—
Bessemer Gas Engine Co.
Buda Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
Kansas City Hay Press Co.
Marion Mch., Fdy. & Supply Co.
National Supply Co.
Oil Well Supply Co.
Pattin Bros. Co.
Reid, Joseph, Gas Engine Co.
Spence Machine Co.
Titusville Iron Works Co.

Pumps—Boiler Feed—
Ajax Iron Works.
Byron Jackson Pump Mfg. Co., Inc.
Fairbanks-Morse & Co.
Gardner Governor Co.
Goulds Pumps, Inc.
Oil Well Supply Co.
Smith Separator Co.

Pumps—Centrifugal—
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Fairbanks-Morse & Co.
Goulds Pumps, Inc.
Smith Separator Co.
Worthington Pump & Machinery Corp.

Pumps—Direct Driven—
Bessemer Gas Engine Co.
Smith Separator Co.

Pumps—Electric—
Prescott Co.
Smith Separator Co.

Pumps—Fuel Oil Service—
Blackmer Pump Co.
Goulds Pumps, Inc.
Northern Fire Apparatus Co.
Smith Separator Co.

Pumps—Fuel Oil Transfer—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.

Pumps—Gasoline and Oil for Filling Stations—
Gilbert & Barker Mfg. Co.

Pumps—Gear Driven—
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
Prescott Co.
Smith Separator Co.

Pumps—Hot Oil—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Goulds Pumps, Inc.
Smith Separator Co.

Pumps—Pipe Line—
Byron Jackson Pump Mfg. Co., Inc.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
National Transit Pump & Machine Co.
Prescott Co.
Wheatley Bros. Machine Works
Worthington Pump & Machinery Corp.

Pumps—Portable—
Gaso Pump & Burner Mfg. Co.

Pumps—Power—
Fairbanks-Morse & Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
Myers, F. E., Bro. & Co.
National Transit Pump & Machine Co.
Prescott Co.
Smith Separator Co.
Waukesha Motor Co.

Pumps—Refinery—
Blackmer Pump Co.
Byron Jackson Pump Mfg. Co., Inc.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
National Transit Pump & Machine Co.
Northern Fire Apparatus Co.
Smith Separator Co.

Pumps—Rotary—
Blackmer Pump Co.
Goulds Pumps, Inc.
Northern Fire Apparatus Co.
Roots, P. H. & F. M., Co.

Pumps—Sand—
Bridgeport Machine Co.
Larkin & Co.
Smith Separator Co.

Pumps—Slush—
Gardner Governor Co.

Pumps—Steam—
Fairbanks-Morse Co.
Frick-Reid Supply Co.
Gardner Governor Co.
Gaso Pump & Burner Mfg. Co.
Lucey Mfg. Corp.
National Transit Pump & Machine Co.
Oil Well Supply Co.
Prescott Co.
Smith Separator Co.

Pumps—Suction—
Gaso Pump & Burner Mfg. Co.

Pumps—Vacuum—
Bessemer Gas Engine Co.
Chicago Pneumatic Tool Co.
Clark Brothers Co.
Gaso Pump & Burner Mfg. Co.
Miller Improved Gas Engine Co.
Roots, P. H. & F. M., Co.
Ross Heater & Mfg. Co., Inc.
Smith Separator Co.

Pumps—Water—
American Well Works.
Byron Jackson Pump Mfg. Co., Inc.
Gaso Pump & Burner Mfg. Co.
Goulds Pumps, Inc.
Northern Fire Apparatus Co.
Prescott Co.
Smith Separator Co.

Punch—Rotary Belt—
Victor Balata & Textile Belting Co.

Purifiers—Oil Absorption—
Sharples Specialty Co.

Pyrometers—
Brown Instrument Co.
Republic Flow Meters Co.

R

Ratchet Pipe Cutters—
Toledo Pipe Threading Machine Co.

Ratchet Pipe Threaders—
Nye Tool & Machine Works
Toledo Pipe Threading Machine Co.

Receiving Boxes—
Reid, Joseph, Gas Engine Co.

Recorders—Differential Pressure—
Equitable Meter & Mfg. Co.
Metric Valve Works.

Refinery Equipment—
American Radiator Co.
Blaw-Knox Co.
Braun, C. F., & Co.
Carbondale Machine Co.
Chicago Bridge & Iron Works.
Cross Engineering Co.
Graver Corp.
Griscom-Russell Co.
Kellogg, M., W. Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Appliance Co.
Petroleum Iron Works Co.
Power Piping Co.
Power Specialty Co.
Reid, Joseph, Gas Engine Co.
Ross Heater & Mfg. Co., Inc.
Ross-Meehan Foundries.
Smith, A. O., Corp.
Smith Separator Co.
Southwestern Engineering Co., Inc.
Southwestern Engineering Corp.
United Iron Works, Inc.
Universal Oil Products Co.
Vogt, Henry, Machine Co.
Walsh & Weidner Boiler Co.
Westcott & Greis.
Widdell Engineering Co.

Refractories—Furnace, Stills and Baffles—
Botfield Refractories Co.
National Gas Products Co.

Refrigerating Machinery—
Carbondale Machine Co.
United Iron Works, Inc.
Vogt, Henry, Machine Co.

Regulators—
Fisher Governor Co.
Gilfillan Machine Works.
Smith Separator Co.

Regulators—Gas—
Chaplin-Fulton Mfg. Co.
Davis, G. M., Regulator Co.
Equitable Meter & Mfg. Co.
Fisher Governor Co.
Metric Metal Works.
National Gas Products Co.
Smith Separator Co.

Rental Service—
Bridgeport Machine Co.

Reversible Clutches—
Bessemer Gas Engine Co.

Rig Irons—
International Supply Co.
Lucey Mfg. Corp.
National Supply Co.
Oil Well Supply Co.
Parkersburg Rig & Reel Co.

Rigs—Drilling, All Steel—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Rigs—Portable Drilling—
National Supply Co.
National Turnbuckle Derrick Co.
Star Drilling Machine Co.

Rod Guides—
Meier, E. C., Lubricating Co.

Rods—Polish—
Jones, S. M., Co.

Rods—Pull—
Axelson Machine Co.
Columbus Sucker Rod Co.
Jones, S. M., Co.
Sheffield Steel Corp.

Rods—Sucker—
Axelson Machine Co.
Columbus Sucker Rod Co.
D & B Pump & Supply Co.
Frick-Reid Supply Co.
Jones, S. M., Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Sheffield Steel Corp.

Rods—Valve—
Jones, S. M., Co.

Roofing—Asbestos—
Johns-Manville, Inc.

Roofing—Galvanized Iron—
American Rolling Mill Co.

Rope Socket Metal—
Eagle-Picher Lead Co.

Rope—Manila—
Ajax Rope Co., Inc.
Bovaird Supply Co.
Republic Supply Co.

Rope—Wire—
Ajax Rope Co., Inc.
American Cable Co.
Bovaird Supply Co.
Bridgeport Machine Co.
Broderick & Bascom Rope Co.
International Supply Co.
Jarecki Mfg. Co.
Wickwire-Spencer Steel Corp.
Leschen, A. & Sons, Rope Co.
Williamsport Wire Rope Co.

Rotary Bit Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Rotary Drilling Equipment—
Emsco Derrick & Equipment Co.
Frick-Reid Supply Co.
International Derrick & Equipment Co.
Link-Belt Co.
Lucey Mfg. Co.
National Supply Co.
Oil Well Supply Co.
Republic Supply Co.
Titusville Iron Works Co.

Rotary Lines (See Rope—Wire)—

Rotary Post—
Reed Roller Bit Co.

Rotary Tool Joints—
Bartlesville Supply Co.
Hughes Tool Co.

Rust Preventatives—
Dearborn Chemical Co.
Eagle-Picher Lead Co.

S

Sand Lines—Manila—
Ajax Rope Co., Inc.
Plymouth Cordage Co.

Sand Lines—Wire—
Ajax Rope Co., Inc.
Broderick & Bascom Rope Co.
Hazard Mfg. Co.
Wickwire-Spencer Steel Corp.

Screens—Oil Well—
Layne & Bowler Co.

Screens—Water Well—
Layne & Bowler Co.

Screws Temper—
Burns Tool Co.

Separators—Centrifugal—
Miller, Max B., & Co.
Sharples Specialty Co.

Separators—Gas and Oil—
Smith Separator Co.

Separators—Steam—
Volz Engineering Equipment Co.

Sheet Lead—Chemical and Antimonial—
Eagle-Picher Lead Co.

Sheets—Corrugated, Black and Galvanized—
American Rolling Mill Co.
American Sheet & Tin Plate Co.
Ryerson, Jos. T., & Son, Inc.
United Alloy Steel Corp.

Sheets—Steel—
American Rolling Mill Co.
American Sheet & Tin Plate Co.
Republic Iron & Steel Co.
Sheffield Steel Corp.
United Alloy Steel Corp.

Shingles—Asbestos—
Johns-Manville, Inc.

Siding—Galvanized Iron—
American Rolling Mill Co.

Sleeves—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Sleeves—Split—
Dayton Pipe Coupling Co.
Dresser, S. R., Mfg. Co.

Smoke Stacks—
Donovan Boiler Works.

Snuffers—Fire—
Simplex Equipment Co.

Sockets—
Acme Fishing Tool Co.
Bridgeport Machine Co.
Spang & Co.

Sockets—Sucker Rod—
Guiberson Corp.

Sockets—Swivel—
Arbon, Paul, & Co.

Sockets—Wire Rope—
Chicago Steel Foundry Co.

Soda Ash—
Mathieson Alkali Works, Inc.

Soda—Caustic—
Mathieson Alkali Works, Inc.

Solders—Bar and Wire—
Eagle-Picher Lead Co.
Hoyt Metal Co.

Spark Plugs—
Mosler Metal Products Corp.

Spears—
Acme Fishing Tool Co.
Brown Tool Co., Inc.

Sprockets—Power Transmission—
Ajax Iron Works
Chain Belt Co.

Stands—Vice—
Nye Tool & Machine Works

Steel—All Kinds—
Ryerson, Jos. T., & Son, Inc.

Steel—Alloy—
Central Steel Co.
Timken Roller Bearing Co.
United Alloy Steel Corp.

Steel—Bit—
Central Steel Co.
United Alloy Steel Corp.

Steel—Hot Rolled Strip—
Central Steel Co.

Steel—Special—
Andrews Steel Co.
Central Steel Co.
United Alloy Steel Corp.

Steel Fabricators—Structural—
Austin Co.
Braden Co.
Graver Corp.
International Derrick & Equipment Co.

Steel Pitmans—
International Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Steel Plate Construction—
Chicago Bridge & Iron Works.
Graver Corp.
Kaw Steel Construction Co.
Petroleum Iron Works Co.
Vogt, Henry, Machine Co.

Steel Wheels and Tug Rims—
International Derrick & Equipment Co.

Stills—
Blaw-Knox Co.
Chicago Bridge & Iron Works
Graver Corp.
Kaw Steel Construction Co.
Kellogg, M. W., Co.
McKee, Arthur G., & Co.
Newton Process Mfg. Co.
Petroleum Iron Works Co.
Smith, A. O., Corp.
Vogt, Henry, Machine Co.
Widdell Engineering Co.

Stocks and Dies—
Borden Co.
Nye Tool & Machine Works.
Toledo Pipe Threading Machine Co.

Stuffing Boxes—
Axelson Machine Co.
Kansas City Hay Press Co.

Sulphuric Acid—
Eagle-Picher Lead Co.

Superheaters—Steam—
Power Plant Equipment Co.

Swabs—
Arbon, Paul, & Co.
Burt Corporation.
Guiberson Corp.
Simplex Equipment Co.

Swedge Nipples—
Dresser, S. R., Mfg. Co.
Harrisburg Pipe & Pipe Bending Co.

Swing Line Equipment—
Brooks Engineering Corp.

Swivels—
Layne & Bowler Co.
Lucey Mfg. Corp.
Titusville Iron Works Co.

T

Tachometers—
Brown Instrument Co.

Tank Equipment—
Brooks Engineering Corp.
Oil Conservation Engineering Co.

Tanks—Bolted—
Butler Mfg. Co.
Columbian Steel Tank Co.
Maloney Tank Mfg. Co.
Parkersburg Rig & Reel Co.

Tanks—Bulk Station—
Butler Mfg. Co.
Graver Corp.

Tanks—Cylindrical—
Graver Corp.
Petroleum Iron Works Co.

Tanks—Elevated Steel—
Chicago Bridge & Iron Works
Graver Corp.

Tanks—Field Storage—
American Car & Foundry Co.
Donovan Boiler Works.
Graver Corp.
Kaw Steel Construction Co.
Kewanee Boiler Co.
Maloney Tank Mfg. Co.
Petroleum Iron Works Co.
Pittsburgh-Des Moines Steel Co.
Riter-Conley Co.
United Iron Works, Inc.

Tanks—Horizontal Storage—
Graver Corp.
Kaw Steel Construction Co.
Maloney Tank Mfg. Co.

Tanks—Run Down—
Donovan Boiler Works.
Graver Corp.
Kaw Steel Construction Co.
Newton Process Mfg. Co.

Tanks—Trucks—
Butler Mfg. Co.
Columbian Steel Tank Co.
White Co.

Tanks—Underground—
Butler Mfg. Co.
Gilbert & Barker Mfg Co.
Graver Corp.
Kewanee Boiler Co.
Pittsburgh-Des Moines Steel Co.

Tanks—Welded—
Chicago Bridge & Iron Works.
Graver Corp.

Taper Taps—
Hughes Tool Co.

Tapes—Measuring for Oil Gauging—
Lufkin Rule Co.
States Engineering Co.

Thermometers—Indicating and Recording—
American Schaeffer & Budenberg Corp.
Bristol Co.
Brown Instrument Co.
Taylor Instrument Co.

Thermometers—Resistance—
Brown Instrument Co.

Threading Machines—
Bignall & Keeler Machine Wks.
Cox & Sons Co., The
Landis Machine Co.

Thread Protectors—
Spang & Co.

Tightener—Belt—
Victor Balata & Textile Belting Co.

Tires—Automobile—
Continental Supply Co.

Tires—Pneumatic & Solid—
Kelly-Springfield Tire Co.

Tires—Truck—
Kelly-Springfield Tire Co.

Tongs—
Bridgeport Machine Co.
Wilson Oil Tools Corp.

Tongs—Back Up—
Williams, J. H., & Co.

Tongs—Break Out—
Reed Roller Bit Co.
Williams, J. H., & Co.

Tongs—Casing —
Dunn Mfg. Co.
Guiberson Corp.

Tongs—Chain Pipe—
Armstrong Bros. Tool Co.
Williams, J. H., & Co.

Tongs—Pipe—
National Transit Pump & Machine Co.

Tongs—Rotary—
Dunn Mfg. Co.

Tongs—Tool Joint—
Guiberson Corp.
Hughes Tool Co.
Reed Roller Bit Co.

Tongs—Tubing—
Dunn Mfg. Co.

Tool Chests—Pipe—
Nye Tool & Machine Works.

Tool Joints—
Bridgeport Machine Co.
Federal Supply Co.
Hughes Tool Co.
Lucey Mfg. Corp.
Oil Well Supply Co.
Regan Forge & Engineering Co.

Torches—
Oxweld Acetylene Co.

Towers—
Graver Corp.

Tractors—
Cleveland Tractor Co.
International Harvester Co. of America.

Trailers—
Spencer Trailer Co.

Transmission Belt—Rubber—
Goodrich, B. F., Rubber Co.
United States Rubber Co.

Transmission Lining—
Stanley Belting Corp.

Traveling Block—
Lucey Mfg. Corp.
Regan Forge & Engineering Co.
Wright Mfg. Co.

Trenchers—Vertical Boom—
Barber-Greene Co.

Trucks—Motor—
Ford Motor Co.
General Motors Truck Co.
Graham Brothers.
International Harvester Co. of America.
White Co.

Tubes—Boiler, Charcoal Iron—
Byers, A. M., Co.
Reading Iron Co.

Tubes—Roller Steel—
Continental Supply Co.
National Tube Co.
Ryerson, Jos. T., & Sons, Inc.

Tubing—
Babcock & Wilcox Tube Co.
Byers, A. M., Co.
Central Tube Co.
Continental Supply Co.
National Tube Co.
Reading Iron Co.
South Chester Tube Co.
Spang, Chalfant & Co., Inc.
Superior Tube Co.
Wheeling Steel Corp.

Tubing Catchers—
Continental Supply Co.
Dunn Mfg. Co.
Guiberson Corp.

Tubing Protectors (See Rod Guides)—

Tubular Goods—
Central Tube Co.
Continental Supply Co
Oil Well Supply Co.
Republic Iron & Steel Co.
Spang, Chalfant & Co., Inc.
Wheeling Steel Corp.

Tubular Goods—Wrought Iron—
Byers, A. M., Co.
Reading Iron Co.

Turbines for Lighting Equipment
Lucey Mfg. Corp.
Westinghouse Electric & Mfg. Co.

U

Underreamer Body Steel—
Andrews Steel Co.
Heppenstall Forge & Knife Co.

Underreamers—
Bridgeport Machine Co.
Brown Tool Co., Inc.
Guiberson Corp.
Wilson Oil Tools Corp.

Unions—
Central Forging Co.
Jefferson Union Co.

V

Valuations—
American Appraisal Co.

Valves—Balata—
Victor Balata & Textile Belting Co.

Valves—Blow-Off—
Homestead Valve Mfg. Co.
Merco Nordstrom Valve Co.

Valves—Brass & Bronze—
Homestead Valve Mfg. Co.
Lunkenheimer Co.
Reading Steel Casting Co.
Walworth Co.

Valves—Cast Steel—
Chapman Valve Mfg. Co.
Homestead Valve Mfg. Co.
Walworth Co.

Valves—Check—
Gaso Pump & Burner Mfg. Co.
Lunkenheimer Co.
Walworth Co.

Valves—Drop Forged Steel—
Edwards Valve & Mfg. Co.
Vogt, Henry, Machine Co.

Valves—Gate—High and Low Pressure—
Chapman Valve Mfg. Co.
Crane Co.
Darling Valve & Mfg. Co.
Kennedy Valve Mfg. Co.
Kerotest Mfg. Co.
Ludlow Valve Mfg. Co.
Lunkenheimer Co.
Murray Tool & Supply Co
Powell, Wm., Co.
Walworth Co.

Valves—Iron—
Chapman Valve Mfg. Co.
Lunkenheimer Co.
Merco Nordstrom Valve Co.
Reading Steel Casting Co.
Walworth Co.

Valves—Metal Pump—
Durabla Mfg. Co.

Valves—Pump—
United States Rubber Co.

Valves—Relief—Supersensitive—
Davis, G. M., Regulator Co.

Valves—Steel—
Chapman Valve Mfg. Co.
Edward Valve Mfg. Co.
Kerotest Mfg. Co.
Lunkenheimer Co.
Metric Metal Works.
Powell, Wm., Co.
Reading Steel Casting Co.
Walworth Co.

Valves—Tank Vent—
Brooks Engineering Corp.
Oil Conservation Engineering Co.

Valves—Working Barrel—
Atlas Ball Co.
Axelson Machine Co.
D & B Pump & Supply Co.
Hough, Charles N., Mfg. Co.
Northrup Equipment Co.
Oil Well Supply Co.

Varnishes—
Arco Company, The
Detroit Graphite Co.
Sherwin-Williams Co.

Vises—Bench—
Nye Tool & Machine Works.

Vises—Pipe—
Nye Tool & Machine Works.

Vises—Post—
Nye Tool & Machine Works.

W

Wagons—Truss Wheel—
Athey Truss Wheel Co.

Walking Beams—Steel—
Emsco Derrick & Equipment Co.
Moore, Lee C., & Co., Inc.

Water Cooling Systems —
Power Plant Equipment Co.

Water Softeners and Filters—
Butler Mfg. Co.
Graver Corp.

Wax—
Barnsdall Refining Co.
Gulf Refining Co.
Pure Oil Co.

Weight Indicators—
Hughes Tool Co.

Welding Accessories—Electric—
Wilson Welder & Metals Co.

Welding and Cutting Apparatus—
Oxweld Acetylene Co.

Welding Machines—Electric—
Wilson Welder & Metals Co.

Welding Supplies—
Oxweld Acetylene Co.

Welding Wire—
Frick-Reid Supply Co.
Oxweld Acetylene Co.
Wilson Welder & Metals Co.

Well Shooting—
Eastern Torpedo Co.
Zero Hour Torpedo Co.

Wheels—Pipe Cutter—
Nye Tool & Machine Works.

Wheels—Steel Automotive—
Budd Wheel Co.

Winches—
Braden Co.
Brooks Engineering Co.
Oil Conservation Engineering Co.

Wire Lines (See Cables—Steel)—

Wood Patterns and Models—
Gaso Pump & Burner Mfg. Co.

Working Barrels—
Axelson Machine Co.
D & B Pump & Supply Co.
D. & N. Specialty Co.
Franklin Valveless Engine Co.
Frick-Reid Supply Co.
Hough, Charles N., Mfg. Co.
McGregor Working Barrel Co.
Norris, W. C.
Northrup Equipment Co.
Oil Well Supply Co.

Wrenches—Closet Spuds—
Nye Tool & Machine Works.

Wrenches—Drop Forged—
Williams, J. H., & Co.

Wrenches—Pipe—
Trimont Mfg. Co.
Walworth Co.

Wrenches—Ratchet—
Dresser, S. R., Mfg. Co.
Nye Tool & Machine Works.

Z

Zinc Oxide—
Eagle-Picher Lead Co.

XUM

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Statement for May

Runs

	Month	Daily Av.
*Prairie Pipe Line Co.	3,875,000	125,000
Gulf Pipe Line Co.	1,068,009	34,451
Texas Pipe Line Co.	473,755	15,282
Magnolia Petroleum Co.	1,199,767	38,702
Empire Pipe Line Co.	828,872	26,738
Cosden Pipe Line Co.	913,699	29,484
Sinclair Pipe Line Co.	1,755,344	56,624
*Other lines	7,750,000	250,000
Total May	17,864,437	576,281
Total April	17,796,296	593,210
Difference	68,141	16,929

Shipments

†Prairie Pipe Line Co.	4,542,260	146,525
Gulf Pipe Line Co.	1,113,474	35,918
Texas Pipe Line Co.	773,802	24,961
Magnolia Petroleum Co.	1,476,204	47,619
Empire Pipe Line Co.	790,792	25,509
Cosden Pipe Line Co.	913,280	29,461
†Sinclair Pipe Line	2,830,468	91,305
*Other lines	8,835,000	285,000
Total May	21,275,280	686,298
Total April	20,718,297	690,608
Difference	456,983	4,310

Stocks

*Prairie Oil & Gas Co.	27,250,000
*Prairie Pipe Line Co.	2,000,000
Gulf Pipe Line and Gypsy Oil Co.	6,300,446
The Texas Company	3,301,196
Magnolia Petroleum Co.	4,593,255
Empire Pipe Line Co.	2,840,238
Cosden Pipe Line Co.	1,956,281
*Sinclair Crude Oil Purchasing Co.	13,400,900
Carter Oil Co.	13,382,355
*Other lines	9,800,900
Total May	90,623,771
Total April	92,616,769
Difference	1,992,898

*Estimated. †Prairie shipments include Texas crude oil. Sinclair shipments include Texas and Wyoming crude oil.

Note: Stocks do not include 5,500,000 bbls. of crude oil held in storage on private tank farms and leases.

EASTERN PIPE LINES

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for April and May:

	April, 1926	May, 1926
Nat. Transit	175,931.87	174,996.11
S. W. Pa. Pipe	89,773.16	91,188.06
Eureka P. L.	372,871.02	370,755.39
Buckeye P. L. (Macksburg)	304,614.55	294,855.09
Buckeye P. L. (Cleveland)	12,060.87	11,845.40
Buckeye P. L. (Lima, etc.)	127,204.85	133,401.39
Indiana P. L.	9,095.76	10,520.15
Cumberland P. L.	273,842.36	268,123.06
N. Y. Transit	20,181.07	19,552.93
Tidewater P. L.	160,027.79	159,613.39
Pure Oil	171,766.80	172,006.54
Emery P. L.	48,703.74	49,842.97
Indian Ref.	93,143.14	97,979.63
Paragon Dev.	24,723.50	23,308.37
Pittsburgh P. L.	6,733.43	
Total	1,890,573.41	1,877,987.48
Daily average	63,019.11	60,580.24

Note: Indian Refining Co. also reported other receipts of 283,329.87 bbls. Paragon Refining Co. had other receipts of 140,751.80 bbls. Paragon Development had other receipts of 2,113.44 bbls. Pure Oil had other receipts of 59,553.74 bbls.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for April and May:

	April, 1926	May, 1926
Nat. Transit	314,763.21	345,085.14
S. W. Pa. P. L.	409,564.75	393,148.52
Eureka P. L.	163,392.74	192,968.03
Buckeye P. L. (Macksburg)	94,254.91	114,603.45
Buckeye P. L. (Cleveland)	1,162.42	969.91
Buckeye P. L. (Lima, etc.)	823,641.06	910,244.94
Indiana P. L.	963,616.70	996,006.17
Cumberland P. L.	162,112.44	144,932.35
N. Y. Transit	668,407.25	690,213.42
Northern Pipe	133,960.98	161,237.60
Tidewater P. L.	93,030.34	159,830.90
Pure Oil	205,777.75	244,274.44
Emery P. L.	45,829.05	49,935.36
Paragon Ref.	170,282.16	140,751.80
Indian Ref.	288,296.97	419,340.15
Paragon Dev.	26,494.22	27,092.55
Pittsburgh P. L.	6,539.32	
Total	4,571,126.27	4,990,634.73
Daily average	152,370.87	154,536.60

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky, at the close of April and May, were as follows:

	April, 1926	May, 1926
Nat. Transit	1,069,233.29	1,062,711.06
S. W. Pa. P. L.	688,704.11	592,119.25
Eureka P. L.	1,621,601.25	1,489,308.65
Buckeye P. L. (Macksburg)	417,370.13	454,767.17
Buckeye P. L. (Cleveland)	73,536.91	80,869.73
Buckeye P. L. (Lima, etc.)	2,369,543.33	2,331,309.46
Indiana P. L.	544,568.51	566,868.09
Cumberland P. L.	599,474.86	598,818.89
Southern P. L.	481,210.52	447,896.85
N. Y. Transit	695,608.61	735,622.34
Northern P. L.	436,138.52	442,189.21
Pure Oil	460,634.48	450,527.08
Emery P. L.	34,514.24	35,299.99
Paragon Ref.	72,985.28	45,985.57
Indian Ref.	231,194.41	193,356.41
Paragon Dev.	4,918.23	4,107.65
Pittsburgh P. L.	4,614.59	
Total	9,805,851.27	9,531,757.40
Decrease	*367,558.84	274,093.87

*Increase.

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of April and May showing the gross stocks of the above fields:

	April, 1926	May, 1926
Pennsylvania	4,076,568.47	3,824,110.70
Lima	947,707.33	953,292.28
Kentucky	1,163,245.60	1,167,315.61
Mid-Continent	3,459,618.16	3,479,821.87
Illinois	158,711.71	107,216.94
Total	9,805,851.27	9,531,757.40

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1923	1924	1925	1926
January	75,790	62,638	56,831	55,630
February	71,092	62,023	60,606	60,394
March	76,592	68,721	60,575	61,644
April	75,614	71,058	63,062	63,019
May	77,365	63,942	59,217	60,580
June	77,593	63,230	61,270	.....
July	71,879	64,208	62,639	.....
August	76,910	59,942	59,686	.....
September	72,358	62,930	62,510	.....
October	76,256	64,976	60,995	.....
November	70,762	56,282	59,350	.....
December	69,271	55,814	57,974	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1923	1924	1925	1926
January	171,067	145,518	157,889	156,056
February	164,219	148,732	160,863	159,488
March	185,487	147,098	154,591	150,239
April	170,751	147,611	151,429	152,371
May	177,102	134,997	146,995	154,537
June	173,598	143,010	149,467	.....
July	168,330	124,187	161,338	.....
August	142,776	123,120	161,730	.....
September	137,266	127,325	156,719	.....
October	134,597	123,170	145,388	.....
November	131,426	124,400	143,582	.....
December	139,909	151,392	150,162	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1924	1925	1926
January	12,907,202	11,353,276	9,859,170
February	11,844,068	11,192,924	9,579,364
March	10,906,752	11,158,297	9,438,292
April	10,922,742	11,062,082	9,805,851
May	11,335,309	11,207,562	9,531,757
June	11,544,204	11,093,796	.....
July	12,062,361	11,067,453	.....
August	12,221,676	10,974,481	.....
September	12,206,836	10,781,753	.....
October	12,664,061	11,086,850	.....
November	12,268,550	11,068,158	.....
December	11,583,680	10,458,445	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

	Receipts	Shipmts.	Stocks
1925—			
May	2,814.99	5,719.90	10,254.13
June	3,052.75	1,221.83	12,085.05
July	2,639.34	3,174.10	11,550.29
August	3,216.97	1,577.99	13,189.27
September	2,929.99	5,352.05	10,767.21
October	2,869.75	1,499.34	12,137.62
November	2,759.66	2,571.32	12,283.40
December	2,661.87	3,441.67	11,503.60
1926—			
January	2,990.16	1,478.35	13,015.41
February	2,580.23	2,776.19	12,819.45
March	2,754.62	1,732.77	13,841.30
April	3,137.40	4,519.68	12,459.02
May	2,933.29	2,096.35	13,296.96

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks June 1	2,839,930.90
Runs from wells	654,235.77
Other receipts	344,229.56
Regular deliveries	455,231.12
Other deliveries	418,247.09

The amount of Ilinois oil run by the Tidewater Pipe Co. in May was 28,180.90 bbls. and deliveries were 43,225.78 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1925—	
May	692,671.94
June	700,090.46
July	724,481.26
August	673,652.38
September	706,434.87
October	706,532.00
November	664,556.30
December	665,086.99
1926—	
January	665,243.62
February	632,611.99
March	753,300.74
April	610,957.04
May	682,416.67

568,573.62
589,535.24
564,713.19
650,649.97
610,697.61
633,682.32
488,449.19
578,938.47
516,083.74
506,310.51
524,625.95
487,604.00
498,456.90

The Tidewater Pipe Co., Ltd., also delivered in May 314,131.72 bbls. of Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
February	13,111	9,464	28,214	24,893	20,107	95,789	.....	.....	.....	.....	.....	95,789
March	7,000	2,516	48,839	16,612	16,903	91,870	.....	.....	.....	.....	.....	91,870
April	19,633	5,133	28,333	13,400	22,867	88,767	.....	.....	4,700	.....	.....	93,467
May	27,065	7,903	15,387	13,452	17,742	81,549	.....	.....	4,032	.....	.....	85,571

AVERAGE DAILY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

Average bbls. per day—	ATLANTIC PORTS: Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS: Galveston	New Orleans Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total All Ports
February	14,643	16,071	60,107	9,464	20,750	121,035	22,321	50,350	6,286	6,714	85,671	206,706
March	28,387	15,935	81,743	16,290	34,258	176,613	19,355	44,097	7,096	5,294	75,842	252,454
April	15,200	14,000	76,333	10,633	33,233	156,000	19,200	24,900	2,000	4,433	50,533	206,533
May	12,387	12,258	75,516	11,646	21,548	133,355	12,710	45,226	1,936	5,677	65,549	198,904

GROSS PRODUCTION OF THE UNITED STATES FOR 12 MONTHS

(IN BARRELS)

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mountains	Eastern Fields	Total
June:	Month	19,288,135	13,832,970	13,602,540	3,229,440	9,200,372	1,830,965	2,754,498	3,389,000	66,127,920
	Daily average	642,938	461,099	420,085	107,648	306,672	61,032	91,816	109,000	2,204,264
July:	Month	20,411,049	14,263,565	13,337,598	3,686,675	7,835,819	1,898,178	3,129,199	3,348,000	66,910,083
	Daily average	658,421	460,115	397,984	118,925	252,768	61,231	100,942	108,000	2,158,390
August:	Month	21,005,580	14,441,040	11,936,079	3,558,087	7,450,580	1,858,542	3,250,448	3,177,000	66,677,357
	Daily average	677,599	465,840	385,032	114,777	240,341	56,727	104,853	102,484	2,150,893
September:	Month	20,062,763	14,825,040	11,264,890	3,393,270	6,457,950	1,776,570	3,235,625	3,212,000	64,228,108
	Daily average	668,759	494,168	375,496	113,109	215,265	56,219	107,854	107,067	2,140,937
October:	Month	20,015,076	14,921,199	11,196,511	3,477,146	6,409,281	1,871,830	3,394,990	3,248,000	64,534,033
	Daily average	645,648	481,329	361,178	112,166	206,751	60,382	109,500	104,774	2,081,743
November:	Month	19,095,907	14,590,980	10,650,087	3,221,760	5,927,955	1,758,882	3,088,121	2,992,000	61,325,692
	Daily average	636,530	486,366	355,003	107,397	197,599	58,629	102,937	99,763	2,044,190
December:	Month	19,249,711	14,123,848	10,930,455	3,308,816	6,047,883	1,763,966	3,187,164	3,086,900	61,698,743
	Daily average	620,959	455,608	352,595	106,736	195,093	56,902	102,812	99,552	1,990,282
January:	Month	19,069,562	13,674,813	10,880,814	3,250,536	5,489,620	1,606,952	3,136,280	3,014,000	60,123,578
	Daily average	615,147	441,133	350,994	104,856	177,084	51,835	104,396	97,226	1,939,438
February:	Month	17,163,963	12,387,620	9,689,120	2,877,812	4,756,836	1,583,904	2,769,605	2,921,000	54,159,860
	Daily average	612,999	442,415	346,040	102,779	169,887	56,568	98,914	104,678	1,934,281
March:	Month	18,826,786	14,312,886	10,974,341	3,334,887	5,115,837	1,889,946	3,151,250	3,227,000	60,931,923
	Daily average	607,283	461,706	354,041	107,577	165,027	60,966	101,653	107,323	1,965,946
April:	Month	18,091,771	14,468,190	10,778,760	3,330,120	5,127,510	1,959,570	3,231,404	3,183,000	60,170,325
	Daily average	603,059	482,273	359,292	111,004	170,917	65,319	104,239	106,100	2,005,678
May:	Month	18,667,144	14,507,008	12,182,597	3,516,640	5,482,939	1,996,338	3,459,489	3,217,000	63,129,155
	Daily average	602,166	467,968	392,987	113,440	176,869	64,398	111,596	107,000	2,036,424
Total 12 months		230,947,048	170,349,149	135,423,792	40,185,189	75,302,582	21,795,644	37,788,073	38,224,900	750,015,777
Daily average		632,732	466,710	371,024	110,096	206,308	59,714	103,529	104,726	2,054,838

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Total
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Total
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15,777
54,838

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CONFIDENCE

When a graceful young lady, with much to live for, leaves the safety of her trapeze to hurl herself through space to the hands of a waiting partner, it may look like sheer recklessness. In reality, it is common-sense confidence—based on performance.

Performance is likewise the basis of the confidence GASO Pumps enjoy—performance exemplified by the manner in which GASOS operate year after year for many of the biggest companies in the industry: Prairie, Sinclair, Texas, Standard and Midwest, to cite just a few.

SMALL PUMPS *with* BIG IDEAS *of* DURABILITY *and* EFFICIENCY

Gaso Walking Beam Pump for Gas or Vacuum. Designed to stand world of abuse.

Gaso Walking Beam Pump for Oil or Water; especially adapted for use where no pumping power is available.

Gaso Rodline Pump for general service; used in connection with rod or shackle line between power and well.

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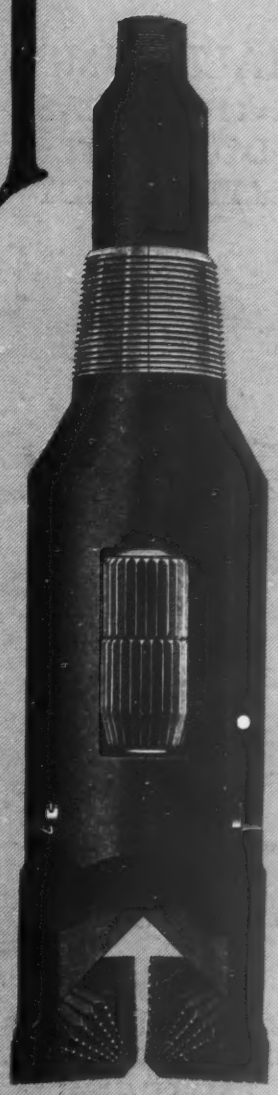
EXPERIENCE Has Proved



1. you can drill into high gas and oil pressures with the ROTARY- without great danger of losing the hole

2. you can make hole with speed and safety in all Rock Formations with a

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